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## Met Thr Lys Ile Lys

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103                      108                      113                      118

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Asn Asn Phe Val Val	Gly Ser Glu Glu Gly Ser Val Tyr Thr Ala Cys	
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cgc cat ggc agc aaa	gct gga atc agt gag atg ttt gag ggg cat caa	1624
Arg His Gly Ser Lys	Ala Gly Ile Ser Glu Met Phe Glu Gly His Gln	
455	460 465 470	
gga cca atc act ggc	atc cat tgt cat gca gct gtt gga gca gta gac	1672
Gly Pro Ile Thr Gly	Ile His Cys His Ala Ala Val Gly Ala Val Asp	
471	476 481 486	
ttc tca cat ctt tat	gtc act tca tgc ttt gag tgg aca gta aag ctt	1720
Phe Ser His Leu Tyr	Val Thr Ser Ser Phe Asp Trp Thr Val Lys Leu	
487	492 497 502	
tgg aca act aag aat	aac aag cct ttg tat tca ttt gaa gat aac gca	1768
Trp Thr Thr Lys Asn	Asn Lys Pro Leu Tyr Ser Phe Glu Asp Asn Ala	
503	508 513 518	
gac tat gtt tat gat	gtt atg tgg tca cct acc cac cca gcc ctg ttt	1816
Asp Tyr Val Tyr Asp	Val Met Trp Ser Pro Thr His Pro Ala Leu Phe	
519	524 529 534	
gcc tgt gtg gat ggc	atg ggg aga ttg gat ttg tgg aat ctc aat aat	1864
Ala Cys Val Asp Gly	Met Gly Arg Leu Asp Leu Trp Asn Leu Asn Asn	
535	540 545 550	
gac aca gag gta cca	act gcc agc att tct gtg gag ggt aat cct gct	1912
Asp Thr Glu Val Pro	Thr Ala Ser Ile Ser Val Glu Gly Asn Pro Ala	
551	556 561 566	
ctt aat cgt gtg aga	tgg acc cat tct ggc aga gag att gct gtg ggt	1960
Leu Asn Arg Val Arg	Trp Thr His Ser Gly Arg Glu Ile Ala Val Gly	
567	572 577 582	
gat tct gaa gga cag	att gtt ata tac gat gtg gga gag cag att gct	2008
Asp Ser Glu Gly Gln	Ile Val Ile Tyr Asp Val Gly Glu Gln Ile Ala	
583	588 593 598	
gtt ccc cgc aat gat	gaa tgg gca cgg ttt ggc cga aca ctt gca gaa	2056
Val Pro Arg Asn Asp	Glu Trp Ala Arg Phe Gly Arg Thr Leu Ala Glu	
599	604 609 614	
att aat gca aac cga	gct gat gca gag gag gaa gca gct acc cga ata	2104
Ile Asn Ala Asn Arg	Ala Asp Ala Glu Glu Glu Ala Ala Thr Arg Ile	

615	620	625	630	
cct gct tag ttcctga aaaggggagt gtaactagtg gatttgggaa aggttcttaa				2160
Pro Ala *				
631				
gtagatcctg agactatttg catgcttctg tctaaatgat aattaaaagg aaatttcatg				2220
gattaaacca tgggtttaat gcagcaagga aacttacaat gtccctttat atataacatg				2280
catcttggtt tggatttggtg tcatttttta atatagctga ttgacttcac agaaagcagc				2340
ttttttgaat tctaatacat aggtgtatat ttggtattag ttattttgag ttcttttcaa				2400
cttataacac tgtatacagt tattttctaaa gcacagatga aataagttct gcatatTTTT				2460
aaataatcac agttccctgt tatacagata atgtttctcac tacccataat atgtaggaac				2520
attgtttctc cttagccgta gtatgcatac acctatccat gttcattctg acatcctttg				2580
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aaaaaaaa				2650

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gagatctctc gaggatccga attcgcggcc gcgtcgacaa gccgcggagc tgggtggtggc	120
tacagttggt gttgggggct taggcgaggg acgttaccgg gaagttgcag gcgggaggac	180
tcttcccat ccagtcacct gacaggtcac aaac	232
atg tca gac aaa agt gaa	
Met Ser Asp Lys Ser Glu	
1	
tta aag gct gag ttg gaa cgt aag aag cag cga ctg gcc caa atc aga	280
Leu Lys Ala Glu Leu Glu Arg Lys Lys Gln Arg Leu Ala Gln Ile Arg	
7 12 17 22	
gag gaa aag aag aga aaa gaa gaa gaa agg aaa aaa aaa gaa aca gac	328
Glu Glu Lys Lys Arg Lys Glu Glu Glu Arg Lys Lys Lys Glu Thr Asp	
23 28 33 38	
cag aag aag gaa gct gtt gct cct gtg caa gaa gaa tca gat ctt gaa	376
Gln Lys Lys Glu Ala Val Ala Pro Val Gln Glu Glu Ser Asp Leu Glu	

39	44	49	54	
aaa aaa agg aga gaa gct gaa gca ttg ctt	caa agc atg ggg cta act	424		
Lys Lys Arg Arg Glu Ala Glu Ala Leu Leu	Gln Ser Met Gly Leu Thr			
55	60 65 70			
cca gaa tcc ccc att gtc cct cct cct atg tct	cca tcc tcc aaa tct	472		
Pro Glu Ser Pro Ile Val Pro Pro Pro Met	Ser Pro Ser Ser Lys Ser			
71	76 81 86			
gtg agc act cca agt gaa gct gga agc caa gac tct	gga gat ggc gcc	520		
Val Ser Thr Pro Ser Glu Ala Gly Ser Gln Asp	Ser Gly Asp Gly Ala			
87	92 97 102			
gtg gga tct aga cga gga cct att aaa ctt	gga atg gct aaa atc acg	568		
Val Gly Ser Arg Arg Gly Pro Ile Lys Leu	Gly Met Ala Lys Ile Thr			
103	108 113 118			
caa gtc gac ttt cct cct cga gaa att gtc	acg tat aca aag gaa act	616		
Gln Val Asp Phe Pro Pro Arg Glu Ile Val	Thr Tyr Thr Lys Glu Thr			
119	124 129 134			
cag act cca gtt atg gct caa ccc aaa gaa gat	gaa gag gaa gat gat	664		
Gln Thr Pro Val Met Ala Gln Pro Lys Glu	Asp Glu Glu Glu Asp Asp			
135	140 145 150			
gat gta gtg gct cct aaa cca cct att gaa cct	gaa gaa gag aaa act	712		
Asp Val Val Ala Pro Lys Pro Pro Ile Glu	Pro Glu Glu Glu Lys Thr			
151	156 161 166			
tta aag aaa gat gag gaa aat gat agt aaa gct	ccc cct cat gag ctg	760		
Leu Lys Lys Asp Glu Glu Asn Asp Ser Lys	Ala Pro Pro His Glu Leu			
167	172 177 182			
act gaa gaa gaa aag caa caa atc ttg cac tct	gag gaa ttt tta agt	808		
Thr Glu Glu Glu Lys Gln Gln Ile Leu His	Ser Glu Glu Phe Leu Ser			
183	188 193 198			
ttc ttt gac cat tct aca aga att gta gaa aga	gct ctt tct gag cag	856		
Phe Phe Asp His Ser Thr Arg Ile Val Glu	Arg Ala Leu Ser Glu Gln			
199	204 209 214			
att aac atc ttc ttt gac tat agt ggg aga gat	ttg gaa gac aaa gaa	904		
Ile Asn Ile Phe Phe Asp Tyr Ser Gly Arg	Asp Leu Glu Asp Lys Glu			
215	220 225 230			
gga gag att caa gca ggt gct aaa ctg tca tta	aat cga caa ttt ttt	952		
Gly Glu Ile Gln Ala Gly Ala Lys Leu Ser	Leu Asn Arg Gln Phe Phe			
231	236 241 246			
gac gaa cgt tgg tca aag cat cgg gtg gtt agt	tgt ttg gat tgg tca	1000		
Asp Glu Arg Trp Ser Lys His Arg Val Val	Ser Cys Leu Asp Trp Ser			
247	252 257 262			
tct cag tat ccg gag tta ctc gtg gct tcc tat	aac aac aat gaa gat	1048		
Ser Gln Tyr Pro Glu Leu Leu Val Ala Ser	Tyr Asn Asn Asn Glu Asp			
263	268 273 278			

gcc cct cat gag cct gat ggt gtg gcc ctt gta tgg aat atg aaa tac	1096
Ala Pro His Glu Pro Asp Gly Val Ala Leu Val Trp Asn Met Lys Tyr	
279 284 289 294	
aaa aaa act acc cca gag tat gtg ttt cac tgc cag tca gct gtg atg	1144
Lys Lys Thr Thr Pro Glu Tyr Val Phe His Cys Gln Ser Ala Val Met	
295 300 305 310	
tct gcc aca ttt gca aaa ttt cat cca aat ctt gtt gtt ggt ggt aca	1192
Ser Ala Thr Phe Ala Lys Phe His Pro Asn Leu Val Val Gly Gly Thr	
311 316 321 326	
tat tca ggc caa att gtg ctt tgg gat aac cgt agc aat aaa aga act	1240
Tyr Ser Gly Gln Ile Val Leu Trp Asp Asn Arg Ser Asn Lys Arg Thr	
327 332 337 342	
cca gtg caa aga act cca ctg tca gca gct gca cac aca cac cct gta	1288
Pro Val Gln Arg Thr Pro Leu Ser Ala Ala Ala His Thr His Pro Val	
343 348 353 358	
tat tgt gta aat gtt gtt gga aca caa aat gct cac aat ctg att agc	1336
Tyr Cys Val Asn Val Val Gly Thr Gln Asn Ala His Asn Leu Ile Ser	
359 364 369 374	
atc tct act gat gga aaa att tgt tca tgg agt ctg gac atg ctt tcc	1384
Ile Ser Thr Asp Gly Lys Ile Cys Ser Trp Ser Leu Asp Met Leu Ser	
375 380 385 390	
cat cca cag gat agc atg gag ttg gtt cat aaa cag tca aaa gca gta	1432
His Pro Gln Asp Ser Met Glu Leu Val His Lys Gln Ser Lys Ala Val	
391 396 401 406	
gct gtg aca tct atg tcc ttc cct gtt gga gat gtc aac aac ttt gtt	1480
Ala Val Thr Ser Met Ser Phe Pro Val Gly Asp Val Asn Asn Phe Val	
407 412 417 422	
gtt ggg agt gaa gaa ggt tct gtg tac aca gca tgc cgc cat ggc agc	1528
Val Gly Ser Glu Glu Gly Ser Val Tyr Thr Ala Cys Arg His Gly Ser	
423 428 433 438	
aaa gct gga atc agt gag atg ttt gag ggg cat caa gga cca atc act	1576
Lys Ala Gly Ile Ser Glu Met Phe Glu Gly His Gln Gly Pro Ile Thr	
439 444 449 454	
ggc atc cat tgt cat gca got gtt gga gca gta gac ttc tca cat ctt	1624
Gly Ile His Cys His Ala Ala Val Gly Ala Val Asp Phe Ser His Leu	
455 460 465 470	
tat gtc act tca tgc ttt gac tgg aca gta aag ctt tgg aca act aag	1672
Tyr Val Thr Ser Ser Phe Asp Trp Thr Val Lys Leu Trp Thr Lys	
471 476 481 486	
aat aac aag cct ttg tat tca ttt gaa gat aac gca gac tat gtt tat	1720
Asn Asn Lys Pro Leu Tyr Ser Phe Glu Asp Asn Ala Asp Tyr Val Tyr	
487 492 497 502	

gat gtt atg tgg tca cct acc cac cca gcc ctg ttt gcc tgt gtg gat	1768
Asp Val Met Trp Ser Pro Thr His Pro Ala Leu Phe Ala Cys Val Asp	
503 508 513 518	
ggc atg ggg aga ttg gat ttg tgg aat ctc aat aat gac aca gag gta	1816
Gly Met Gly Arg Leu Asp Leu Trp Asn Leu Asn Asn Asp Thr Glu Val	
519 524 529 534	
cca act gcc agc att tct gtg gag ggt aat cct gct ctt aat cgt gtg	1864
Pro Thr Ala Ser Ile Ser Val Glu Gly Asn Pro Ala Leu Asn Arg Val	
535 540 545 550	
aga tgg acc cat tct ggc aga gag att gct gtg ggt gat tct gaa gga	1912
Arg Trp Thr His Ser Gly Arg Glu Ile Ala Val Gly Asp Ser Glu Gly	
551 556 561 566	
cag att gtt ata tac gat gtg gga gag cag att gct gtt ccc cgc aat	1960
Gln Ile Val Ile Tyr Asp Val Gly Glu Gln Ile Ala Val Pro Arg Asn	
567 572 577 582	
gat gaa tgg gca cgg ttt ggc cga aca ctt gca gaa att aat gca aac	2008
Asp Glu Trp Ala Arg Phe Gly Arg Thr Leu Ala Glu Ile Asn Ala Asn	
583 588 593 598	
cga gct gat gca gag gag gaa gca gct acc cga ata cct gct tag ttc	2056
Arg Ala Asp Ala Glu Glu Glu Ala Ala Thr Arg Ile Pro Ala *	
599 604 609	
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taatgcagca aggaaactta caatgtccct ttatatataa catgcattctt gttttggatt	2236
tgtgtcattt tttaatatag ctgattgact tcacagaaag cagctttttt gaattctaat	2296
acataggtgt atatttggtta ttagttattt tgagttcttt tcaacttata acactgtata	2356
cagttatttc taaagcacag atgaaataag ttctgcatat ttttaaataa tcacagttcc	2416
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cgtagtatgc atacacctat ccattgttcat tctgacatcc tttgttgtct ttataattca	2536
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gcggaggagg	aggaggaaga	gcgagacgag	agtggctgtg	aggaggagga	agggcgcgag	180
gatgaagatg	aggactcggg	cagtgaagag	agcctggtgg	actcagactc	agaccccag	240
gagaaggagg	tgaacttcca	ggcggacctg	gccgacctga	cttgtgagat	cgaaatcaag	300
cagaagctga	tcgacgagct	ggagaacagc	cagcggcggt	tgcagacgct	caagcaccag	360
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agaagcttca	ggccccgaggt	ggctgag	atg aag aag gcc aag gtg gcc ctg			651
			Met Lys Lys Ala Lys Val Ala Leu			
			1 5			
atg aag cag atg cgt gag gag caa cag cgg cgg cgg cta gtg gag acc						699
Met Lys Gln Met Arg Glu Glu Gln Gln Arg Arg Arg Leu Val Glu Thr						
9 14 19 24						
aag agg aac cgg gag atc gca cag ctc aag aag gag cag cgg cga cag						747
Lys Arg Asn Arg Glu Ile Ala Gln Leu Lys Lys Glu Gln Arg Arg Gln						
25 30 35 40						
gag ttt cag atc cga gct ctg gag tcc cag aag cgg cag cag gag atg						795
Glu Phe Gln Ile Arg Ala Leu Glu Ser Gln Lys Arg Gln Gln Glu Met						
41 46 51 56						
gtc ctg agg agg aag acc cag gag gtt tct gca ctg agg cgc ctg gcc						843
Val Leu Arg Arg Lys Thr Gln Glu Val Ser Ala Leu Arg Arg Leu Ala						
57 62 67 72						
aag ccc atg tct gag cgg gtg gca ggg cgt gca gga cta aag cca ccc						891
Lys Pro Met Ser Glu Arg Val Ala Gly Arg Ala Gly Leu Lys Pro Pro						
73 78 83 88						
atg ctg gac tct ggg gct gag gtg tgg gcc agc act acc tca tct gag						939
Met Leu Asp Ser Gly Ala Glu Val Ser Ala Ser Thr Thr Ser Ser Glu						
89 94 99 104						
gct gaa tca ggg gcc cgc tct gtc tcc agc atc gtg cgc cag tgg aac						987
Ala Glu Ser Gly Ala Arg Ser Val Ser Ser Ile Val Arg Gln Trp Asn						
105 110 115 120						
cgc aaa atc aac cac ttc ttg ggg gac cat cct gcg ccc act gtc aat						1035
Arg Lys Ile Asn His Phe Leu Gly Asp His Pro Ala Pro Thr Val Asn						
121 126 131 136						

ggc acc cgt cct gcc cga aag aag ttc cag aag aag ggg gcc agc cag	1083
Gly Thr Arg Pro Ala Arg Lys Lys Phe Gln Lys Lys Gly Ala Ser Gln	
137 142 147 152	
agc ttc agt aag gcg gca agg ctc aag tgg cag tcc ctg gag cga cgg	1131
Ser Phe Ser Lys Ala Ala Arg Leu Lys Trp Gln Ser Leu Glu Arg Arg	
153 158 163 168	
atc att gac atc gtc atg cag aga atg acc att gtc aac ctg gag gct	1179
Ile Ile Asp Ile Val Met Gln Arg Met Thr Ile Val Asn Leu Glu Ala	
169 174 179 184	
gac atg gag cgg ctc atc aag aaa agg gag gag ctg ttc ctc ctg cag	1227
Asp Met Glu Arg Leu Ile Lys Lys Arg Glu Glu Leu Phe Leu Leu Gln	
185 190 195 200	
gag gca ctg cgg agg aag cgg gag cgg ctg cag gct gag agc ccc gag	1275
Glu Ala Leu Arg Arg Lys Arg Glu Arg Leu Gln Ala Glu Ser Pro Glu	
201 206 211 216	
gaa gag aag ggg ctg cag gag ctg gct gag gag atc gag gtg ctg gca	1323
Glu Glu Lys Gly Leu Gln Glu Leu Ala Glu Glu Ile Glu Val Leu Ala	
217 222 227 232	
gcc aac att gac tac atc aat gac ggc atc acc gac tgc cag gcc acc	1371
Ala Asn Ile Asp Tyr Ile Asn Asp Gly Ile Thr Asp Cys Gln Ala Thr	
233 238 243 248	
atc gtg cag ctg gag gag acc aag gag gag ctg gac tcc aca gac aca	1419
Ile Val Gln Leu Glu Glu Thr Lys Glu Glu Leu Asp Ser Thr Asp Thr	
249 254 259 264	
tcc gtg gtc atc agc tcc tgc tcc ctg gct gaa gcc cgc ctc ctg cta	1467
Ser Val Val Ile Ser Ser Cys Ser Leu Ala Glu Ala Arg Leu Leu Leu	
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Asp Asn Phe Leu Lys Ala Ser Ile Asp Lys Gly Leu Gln Val Ala Gln	
281 286 291 296	
aag gaa gcc cag atc cgg ctg ttg gag ggc cga ctg agg cag acg gat	1563
Lys Glu Ala Gln Ile Arg Leu Leu Glu Gly Arg Leu Arg Gln Thr Asp	
297 302 307 312	
atg gca ggc tcc tcc cag aac cat ctg ctc ctg gac gcc ctg cgt gag	1611
Met Ala Gly Ser Ser Gln Asn His Leu Leu Leu Asp Ala Leu Arg Glu	
313 318 323 328	
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Lys Ala Glu Ala His Pro Glu Leu Gln Ala Leu Ile Tyr Asn Val Gln	
329 334 339 344	
cag gag aat ggc tac gcc agc aca gat gag gag atc tca gag ttc tct	1707
Gln Glu Asn Gly Tyr Ala Ser Thr Asp Glu Glu Ile Ser Glu Phe Ser	
345 350 355 360	

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Glu Gly Ser Phe Ser	Gln Ser Phe Thr Met Lys Gly Ser Thr Ser His	
361	366 371 376	
gac gat ttc aag ttc aag agc gag ccc aaa ctg tct gcc caa atg aaa	1803	
Asp Asp Phe Lys Phe Lys Ser Glu Pro Lys Leu Ser Ala Gln Met Lys		
377	382 387 392	
gct gtg tcg gct gag tgc ctg ggc ccc cca ctg gat atc tcc acc aag	1851	
Ala Val Ser Ala Glu Cys Leu Gly Pro Pro Leu Asp Ile Ser Thr Lys		
393	398 403 408	
aac atc acc aag tcc ctg gcc tcc ctc gtt gag atc aaa gag gac gga	1899	
Asn Ile Thr Lys Ser Leu Ala Ser Leu Val Glu Ile Lys Glu Asp Gly		
409	414 419 424	
gtg ggc ttc tct gtc cga gac ccc tat tac cgg gac agg gtc tcg cgc	1947	
Val Gly Phe Ser Val Arg Asp Pro Tyr Tyr Arg Asp Arg Val Ser Arg		
425	430 435 440	
acc gtc agt ctg cct acc cgg ggc agc act ttc cct agg caa tct cga	1995	
Thr Val Ser Leu Pro Thr Arg Gly Ser Thr Phe Pro Arg Gln Ser Arg		
441	446 451 456	
gcc aca gag acg tcc ccg ctg acg aga agg aag tcc tac gac cga ggg	2043	
Ala Thr Glu Thr Ser Pro Leu Thr Arg Arg Lys Ser Tyr Asp Arg Gly		
457	462 467 472	
cag ccc att agg tcc aca gat gtg gga ttc aca ccc cca tca tcc cct	2091	
Gln Pro Ile Arg Ser Thr Asp Val Gly Phe Thr Pro Pro Ser Ser Pro		
473	478 483 488	
ccc act cgg ccc cgc aat gac cgc aat gtc ttc tct cgt ctc acc agt	2139	
Pro Thr Arg Pro Arg Asn Asp Arg Asn Val Phe Ser Arg Leu Thr Ser		
489	494 499 504	
aat cag agc cag ggg tca gcg ctg gac aag tct gat gac agc gac tcc	2187	
Asn Gln Ser Gln Gly Ser Ala Leu Asp Lys Ser Asp Asp Ser Asp Ser		
505	510 515 520	
tct ttg tcg gag gtc ctg agg ggc atc atc tcc ccg gtt gga gga gcc	2235	
Ser Leu Ser Glu Val Leu Arg Gly Ile Ile Ser Pro Val Gly Gly Ala		
521	526 531 536	
aag ggt gca cgg acg gcc cca ctg cag tgt gtc tcc atg gcc gaa ggc	2283	
Lys Gly Ala Arg Thr Ala Pro Leu Gln Cys Val Ser Met Ala Glu Gly		
537	542 547 552	
cac acc aag ccc atc ctc tgc ctg gat gcc aca gat gag ttg cta ttc	2331	
His Thr Lys Pro Ile Leu Cys Leu Asp Ala Thr Asp Glu Leu Leu Phe		
553	558 563 568	
aca ggg tcc aaa gac cga agc tgc aag atg tgg aac ttg gtt acg gga	2379	
Thr Gly Ser Lys Asp Arg Ser Cys Lys Met Trp Asn Leu Val Thr Gly		
569	574 579 584	
cag gag atc gca gct cta aag ggc cac ccc aac aac gtg gtc tcc atc	2427	

Gln	Glu	Ile	Ala	Ala	Leu	Lys	Gly	His	Pro	Asn	Asn	Val	Val	Ser	Ile		
585					590					595					600		
aag	tac	tgc	agc	cac	tgc	ggg	ctt	gtg	ttc	tcc	gtg	tcc	acc	tcc	tac	2475	
Lys	Tyr	Cys	Ser	His	Ser	Gly	Leu	Val	Phe	Ser	Val	Ser	Thr	Ser	Tyr		
601					606					611					616		
atc	aag	gtg	tgg	gac	atc	cgg	gac	tca	gcc	aag	tgc	att	cgg	act	ctc	2523	
Ile	Lys	Val	Trp	Asp	Ile	Arg	Asp	Ser	Ala	Lys	Cys	Ile	Arg	Thr	Leu		
617					622					627					632		
acg	tcc	tgc	ggc	cag	gtg	atc	tca	ggg	gat	gcc	tgt	gcc	gcc	aca	tcc	2571	
Thr	Ser	Ser	Gly	Gln	Val	Ile	Ser	Gly	Asp	Ala	Cys	Ala	Ala	Thr	Ser		
633					638					643					648		
acc	cgt	gcc	atc	acc	agt	gct	cag	ggc	gag	cat	cag	atc	aac	cag	atc	2619	
Thr	Arg	Ala	Ile	Thr	Ser	Ala	Gln	Gly	Glu	His	Gln	Ile	Asn	Gln	Ile		
649					654					659					664		
gcc	ctc	agc	cct	tgc	ggc	acc	atg	ctg	tac	gcc	gcc	tgc	ggc	aat	gcc	2667	
Ala	Leu	Ser	Pro	Ser	Gly	Thr	Met	Leu	Tyr	Ala	Ala	Ser	Gly	Asn	Ala		
665					670					675					680		
gtc	cgc	atc	tgg	gag	ctt	agc	agg	ttc	cag	cct	gtc	ggc	aag	ctg	act	2715	
Val	Arg	Ile	Trp	Glu	Leu	Ser	Arg	Phe	Gln	Pro	Val	Gly	Lys	Leu	Thr		
681					686					691					696		
ggc	cac	atc	ggc	cct	gtg	atg	tgc	ctg	acg	gtc	acc	cag	acg	gcc	agc	2763	
Gly	His	Ile	Gly	Pro	Val	Met	Cys	Leu	Thr	Val	Thr	Gln	Thr	Ala	Ser		
697					702					707					712		
cag	cat	gac	ctc	gtg	gtg	act	ggc	tcc	aag	gac	cac	tac	gtt	aag	atg	2811	
Gln	His	Asp	Leu	Val	Val	Thr	Gly	Ser	Lys	Asp	His	Tyr	Val	Lys	Met		
713					718					723					728		
ttc	gag	ctg	ggc	gag	tgt	gtg	acg	ggc	acc	atc	ggc	ccc	act	cac	aac	2859	
Phe	Glu	Leu	Gly	Glu	Cys	Val	Thr	Gly	Thr	Ile	Gly	Pro	Thr	His	Asn		
729					734					739					744		
ttc	gag	ccc	ccg	cac	tac	gat	ggc	atc	gag	tgt	ctc	gcc	atc	cag	gga	2907	
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Asp Leu Thr Leu Ser Asn Leu Leu Leu Thr Arg Asn Met Asn Ile Lys	
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His Tyr Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ser Pro Glu Ile Ala	
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Val Ile Gln Asp Ala Glu Glu Arg Pro His Ser Arg Tyr Leu Arg Arg	
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Val Arg Ser Lys Ser Pro Lys Ile Thr Tyr Phe Thr Arg Tyr Ala Lys	
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Glu His Arg Cys Gly Leu Arg Asp Phe Leu Pro Ser Gly Asn Ser Pro			
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His Val Asp Ser Ser Gly Gln Val His Phe Val Ser Pro Leu Leu Tyr			
145	150	155	160
gag agc ggc cac gtc ccc ttc acc atc tca ctg gac gat ggc cac tcc			528
Glu Ser Gly His Val Pro Phe Thr Ile Ser Leu Asp Asp Gly His Ser			
161	166	171	176
ttc cct cgt gcg ggc act tgg ctg gct gtg cac ccc aac aaa gtg ttg			576
Phe Pro Arg Ala Gly Thr Trp Leu Ala Val His Pro Asn Lys Val Leu			
177	182	187	192
atg aag gag aag agt gag ttg atg aac gag atg cat tgg caa tac tac			624
Met Lys Glu Lys Ser Glu Leu Met Asn Glu Met His Trp Gln Tyr Tyr			
193	198	203	208
ggc acc gcc aac acc tca ggc aac ctc agc ctg acc tgg cac gtt gag			672
Gly Thr Ala Asn Thr Ser Gly Asn Leu Ser Leu Thr Trp His Val Glu			
209	214	219	224
gcg ctg ccc aca cag aca cca tca agc tgt ggg gct atg agg aga cag			720
Ala Leu Pro Thr Gln Thr Pro Ser Ser Cys Gly Ala Met Arg Arg Gln			
225	230	235	240

gtg	aga	aag	ctg	gac	cgg	gag	agg	gta	gga	gct	tgg	tgg	aga	ggc	gcc	768
Val	Arg	Lys	Leu	Asp	Arg	Glu	Arg	Val	Gly	Ala	Trp	Trp	Arg	Gly	Ala	
241					246					251					256	
tgg	gcc	aga	cat	ccg	cgg	cag	gag	gcg	ggg	gaa	cat	gcc	aag	agg	cgg	816
Trp	Ala	Arg	His	Pro	Arg	Gln	Glu	Ala	Gly	Glu	His	Ala	Lys	Arg	Arg	
257					262					267					272	
aag	ggg	cac	gcg	gag	acc	ccc	agg	ggg	cgc	cgg	aag	ggg	cgc	gcc	ggg	864
Lys	Gly	His	Ala	Glu	Thr	Pro	Arg	Gly	Arg	Arg	Lys	Gly	Arg	Ala	Gly	
273					278					283					288	
cgg	tcg	gcg	gcg	gcc	gtt	ggc	gag	ctg	agg	cct	gcc	agg	cga	agt	ctg	912
Arg	Ser	Ala	Ala	Ala	Val	Gly	Glu	Leu	Arg	Pro	Ala	Arg	Arg	Ser	Leu	
289					294					299					304	
gag	acc	agc	cgg	gcc	gcg	gcc	gca	atg	gcc	aag	gac	tcg	ccc	agc	ccc	960
Glu	Thr	Ser	Arg	Ala	Ala	Ala	Ala	Met	Ala	Lys	Asp	Ser	Pro	Ser	Pro	
305					310					315					320	
ttg	ggc	gcg	tcg	ccc	aag	aag	ccg	ggc	tgc	tcc	agc	ccg	gcg	gcg	gca	1008
Leu	Gly	Ala	Ser	Pro	Lys	Lys	Pro	Gly	Cys	Ser	Ser	Pro	Ala	Ala	Ala	
321					326					331					336	
gtg	ctg	gag	aac	cag	agg	cgg	gag	ctg	gag	aag	cta	cgg	gcg	gag	ctg	1056
Val	Leu	Glu	Asn	Gln	Arg	Arg	Glu	Leu	Glu	Lys	Leu	Arg	Ala	Glu	Leu	
337					342					347					352	
gag	gcg	gag	cgg	gca	ggc	tgg	cgg	gcg	gaa	cgg	cgg	cgc	ttc	gct	gcc	1104
Glu	Ala	Glu	Arg	Ala	Gly	Trp	Arg	Ala	Glu	Arg	Arg	Arg	Phe	Ala	Ala	
353					358					363					368	
cgg	gag	cgc	cag	ctg	cgt	gag	gag	gcc	gag	cgg	gag	cgg	cga	cag	ctg	1152
Arg	Glu	Arg	Gln	Leu	Arg	Glu	Glu	Ala	Glu	Arg	Glu	Arg	Arg	Gln	Leu	
369					374					379					384	
gct	gac	cgt	ctg	cgc	tcc	aag	tgg	gag	gca	cag	cgc	agc	cgg	gag	ttg	1200
Ala	Asp	Arg	Leu	Arg	Ser	Lys	Trp	Glu	Ala	Gln	Arg	Ser	Arg	Glu	Leu	
385					390					395					400	
cgg	cag	ctg	caa	gag	gag	atg	cag	cgg	gaa	cgc	gag	gcc	gag	atc	cgg	1248
Arg	Gln	Leu	Gln	Glu	Glu	Met	Gln	Arg	Glu	Arg	Glu	Ala	Glu	Ile	Arg	
401					406					411					416	
cag	ctg	ctg	cgc	tgg	aag	gag	gcc	gag	cag	cgg	cag	ctg	cag	cag	ctg	1296
Gln	Leu	Leu	Arg	Trp	Lys	Glu	Ala	Glu	Gln	Arg	Gln	Leu	Gln	Gln	Leu	
417					422					427					432	
ctg	cac	cgg	gag	cgc	gat	ggc	gtg	gtg	cgc	caa	gcc	cgg	gag	ctg	cag	1344
Leu	His	Arg	Glu	Arg	Asp	Gly	Val	Val	Arg	Gln	Ala	Arg	Glu	Leu	Gln	
433					438					443					448	
cgc	cag	ctg	gcc	gag	gag	ctg	gtg	aac	cgc	ggc	cac	tgt	agc	cgc	ccg	1392
Arg	Gln	Leu	Ala	Glu	Glu	Leu	Val	Asn	Arg	Gly	His	Cys	Ser	Arg	Pro	
449					454					459					464	

ggg gcg tcc gag gtt tcc gcg gcg cag tgc cgc tgt cgc ctg cag gaa	1440
Gly Ala Ser Glu Val Ser Ala Ala Gln Cys Arg Cys Arg Leu Gln Glu	
465 470 475 480	
gtg ttg gcg cag ctt cgc tgg cag act gac ggc gag cag gcg gcg cgc	1488
Val Leu Ala Gln Leu Arg Trp Gln Thr Asp Gly Glu Gln Ala Ala Arg	
481 486 491 496	
atc cgc tat ctg cag gcg gcg ctg gag gtg gag cgc cag ctc ttc ctc	1536
Ile Arg Tyr Leu Gln Ala Ala Leu Glu Val Glu Arg Gln Leu Phe Leu	
497 502 507 512	
aag tac atc ctg gcg cac ttc cgc ggg cac ccg gct ttg tcg gga tca	1584
Lys Tyr Ile Leu Ala His Phe Arg Gly His Pro Ala Leu Ser Gly Ser	
513 518 523 528	
ccg gac ccc caa gct gtg cat tcc ttg gaa gaa ccg ctg ccc cag acc	1632
Pro Asp Pro Gln Ala Val His Ser Leu Glu Glu Pro Leu Pro Gln Thr	
529 534 539 544	
tcc agc ggc tct tgc cac gcc ccc aaa ccc gcc tgc caa ctc gga tct	1680
Ser Ser Gly Ser Cys His Ala Pro Lys Pro Ala Cys Gln Leu Gly Ser	
545 550 555 560	
cta gac agc ctg agt gct gaa gtc ggt gtg cgc tcc cgc tcg cta ggc	1728
Leu Asp Ser Leu Ser Ala Glu Val Gly Val Arg Ser Arg Ser Leu Gly	
561 566 571 576	
ctg gtg tcc tct gcg tgc tcc agc tcc cca gac ggc ctg ctc tcc acg	1776
Leu Val Ser Ser Ala Cys Ser Ser Ser Pro Asp Gly Leu Leu Ser Thr	
577 582 587 592	
cac gcc agc tcc ctt gat tgc ttc gca cct gcg tgt tcc cgc tcg ctt	1824
His Ala Ser Ser Leu Asp Cys Phe Ala Pro Ala Cys Ser Arg Ser Leu	
593 598 603 608	
gac agc acc cgg agc ctc ccc aag gcc tcc aaa tcc gag gag cgg ccc	1872
Asp Ser Thr Arg Ser Leu Pro Lys Ala Ser Lys Ser Glu Glu Arg Pro	
609 614 619 624	
tcc tca cca gac acc tcc acc cct ggc tcc cgg agg ctc tcg ccg cca	1920
Ser Ser Pro Asp Thr Ser Thr Pro Gly Ser Arg Arg Leu Ser Pro Pro	
625 630 635 640	
cca tcg cca ctc ccg ccg cca cca cca ccg tca gcc cac agg aaa ctc	1968
Pro Ser Pro Leu Pro Pro Pro Pro Pro Pro Ser Ala His Arg Lys Leu	
641 646 651 656	
agc aac ccg cgg gga gga gaa ggc tct gag agc cag ccc tgc gaa gtc	2016
Ser Asn Pro Arg Gly Gly Glu Gly Ser Glu Ser Gln Pro Cys Glu Val	
657 662 667 672	
ctg act ccc tca ccc ccg ggc ctg ggc cac cac gag ctg ata aag ctg	2064
Leu Thr Pro Ser Pro Pro Gly Leu Gly His His Glu Leu Ile Lys Leu	
673 678 683 688	
aac tgg ctg ctg gcc aag gcg ttg tgg gtg ctg gcg cgc cgc tgt tat	2112

Asn Trp Leu Leu Ala Lys Ala Leu Trp Val Leu Ala Arg Arg Cys Tyr	
689 694 699 704	
acc ctg caa gcg gag aac aag cag ctg cgg cgt gca ggc tgc ccc tac	2160
Thr Leu Gln Ala Glu Asn Lys Gln Leu Arg Arg Ala Gly Cys Pro Tyr	
705 710 715 720	
cag gca gac gag aag gtg aag cgg ctc aag gta aag cgc gcg gag ctg	2208
Gln Ala Asp Glu Lys Val Lys Arg Leu Lys Val Lys Arg Ala Glu Leu	
721 726 731 736	
acc ggg ctc gcg cgg cgc cta gct gac cgc gcc cgc aag ctg cag gag	2256
Thr Gly Leu Ala Arg Arg Leu Ala Asp Arg Ala Arg Lys Leu Gln Glu	
737 742 747 752	
acc aac ctc cgg gcc gtg agc gcg cct ata ccc ggc gag agt tgc gcc	2304
Thr Asn Leu Arg Ala Val Ser Ala Pro Ile Pro Gly Glu Ser Cys Ala	
753 758 763 768	
ggc ctg gag ctg tgc caa gtc ttt gcc cgc cag cgc gct cgg gac ctg	2352
Gly Leu Glu Leu Cys Gln Val Phe Ala Arg Gln Arg Ala Arg Asp Leu	
769 774 779 784	
tcg gag cag gcg agc gcg ccg ctg gcc aag gac aag cag atc gaa gag	2400
Ser Glu Gln Ala Ser Ala Pro Leu Ala Lys Asp Lys Gln Ile Glu Glu	
785 790 795 800	
ctg cgg cag gag tgc cac ctc ctg cag gcg cgt gtc gcc tcg ggt ccc	2448
Leu Arg Gln Glu Cys His Leu Leu Gln Ala Arg Val Ala Ser Gly Pro	
801 806 811 816	
tgc agc gac ctg cat act gga agg ggc gcc ccc tgc acc cag tgg ctc	2496
Cys Ser Asp Leu His Thr Gly Arg Gly Gly Pro Cys Thr Gln Trp Leu	
817 822 827 832	
aac gtc aga gac tta gac cgc ctg cag cgc gag tcc cag cgg gaa gtg	2544
Asn Val Arg Asp Leu Asp Arg Leu Gln Arg Glu Ser Gln Arg Glu Val	
833 838 843 848	
ctg cgc ctg cag agg cag ttg atg ctt cag cag gcc aac ggt gcc gct	2592
Leu Arg Leu Gln Arg Gln Leu Met Leu Gln Gln Gly Asn Gly Gly Ala	
849 854 859 864	
tgg ccc gag gcg ggc gcc cag agc gca acc tgc gag gag gtg cga cgg	2640
Trp Pro Glu Ala Gly Gly Gln Ser Ala Thr Cys Glu Glu Val Arg Arg	
865 870 875 880	
cag atg ctg gcg ctg gag cgc gag ctg gac cag cgg cgg cgc gag tgc	2688
Gln Met Leu Ala Leu Glu Arg Glu Leu Asp Gln Arg Arg Arg Glu Cys	
881 886 891 896	
cag gag ctg ggc gcg cag gcg gcc ccg gcg cgg cga cgt ggc gag gag	2736
Gln Glu Leu Gly Ala Gln Ala Ala Pro Ala Arg Arg Gly Glu Glu	
897 902 907 912	
gcc gag aca cag ctg cag gcg gcg ctg ctc aaa aac gcc tgg ctg gcg	2784
Ala Glu Thr Gln Leu Gln Ala Ala Leu Leu Lys Asn Ala Trp Leu Ala	

913	918	923	928	
gag gag aat ggg cgg ctg cag gcc aag acc gac tgg gtg cgg aag gtg				2832
Glu Glu Asn Gly Arg Leu Gln Ala Lys Thr Asp Trp Val Arg Lys Val				
929	934	939	944	
gag gct gag aat agc gaa gtg cgc ggc cac ctg ggc cgc gcg tgt caa				2880
Glu Ala Glu Asn Ser Glu Val Arg Gly His Leu Gly Arg Ala Cys Gln				
945	950	955	960	
gag cgc gat gcc tcc ggc ttg atc gcc gaa cag ctg ctg cag cag gcg				2928
Glu Arg Asp Ala Ser Gly Leu Ile Ala Glu Gln Leu Leu Gln Gln Ala				
961	966	971	976	
gcg cgc ggg cag gac agg cag cag cag ctg caa cgc gac ccg cag aag				2976
Ala Arg Gly Gln Asp Arg Gln Gln Gln Leu Gln Arg Asp Pro Gln Lys				
977	982	987	992	
gcc ctg tgt gac ctc cat cct tcc tgg aag gag ata cag gcg ctc cag				3024
Ala Leu Cys Asp Leu His Pro Ser Trp Lys Glu Ile Gln Ala Leu Gln				
993	998	1003	1008	
tgt cgg cct ggt cac cct cct gaa cag ccc tgg gag acc agt caa atg				3072
Cys Arg Pro Gly His Pro Pro Glu Gln Pro Trp Glu Thr Ser Gln Met				
1009	1014	1019	1024	
ccg gag tcc caa gtt aaa ggt agc aga agg ccc aag ttc cac gca cgg				3120
Pro Glu Ser Gln Val Lys Gly Ser Arg Arg Pro Lys Phe His Ala Arg				
1025	1030	1035	1040	
cct gaa gac tac gca gtg tca cag ccc aac aga gac ata cag gag aaa				3168
Pro Glu Asp Tyr Ala Val Ser Gln Pro Asn Arg Asp Ile Gln Glu Lys				
1041	1046	1051	1056	
agg gaa gcc tcc ctc gag gag agc cca gtt gcc ctt ggg gag tca gcc				3216
Arg Glu Ala Ser Leu Glu Glu Ser Pro Val Ala Leu Gly Glu Ser Ala				
1057	1062	1067	1072	
agt gtc ccc caa gtt tca gag aca gtc cct gcc agc caa cct ctg tcc				3264
Ser Val Pro Gln Val Ser Glu Thr Val Pro Ala Ser Gln Pro Leu Ser				
1073	1078	1083	1088	
aag aaa acc agc tcc cag tca aac tcc tcc tct gag ggg tcg atg tgg				3312
Lys Lys Thr Ser Ser Gln Ser Asn Ser Ser Ser Glu Gly Ser Met Trp				
1089	1094	1099	1104	
gcc acc gtg ccg tcc tcc cct act ctg gac agg gac aca gcc agt gag				3360
Ala Thr Val Pro Ser Ser Pro Thr Leu Asp Arg Asp Thr Ala Ser Glu				
1105	1110	1115	1120	
gtg gat gac ctg gag cct gac agc gtg tcc ctg gcc ctg gaa atg ggg				3408
Val Asp Asp Leu Glu Pro Asp Ser Val Ser Leu Ala Leu Glu Met Gly				
1121	1126	1131	1136	
ggc tcg gcg gct cct gct gcc ccc aag ctc aag atc ttc atg gct cag				3456
Gly Ser Ala Ala Pro Ala Ala Pro Lys Leu Lys Ile Phe Met Ala Gln				
1137	1142	1147	1152	

tat aac tac aac cca ttt gag ggg ccc aat gat cac cct gag ggt gag	3504
Tyr Asn Tyr Asn Pro Phe Glu Gly Pro Asn Asp His Pro Glu Gly Glu	
1153 1158 1163 1168	
ctg ccc ctc aca gct ggg gac tac ata tat atc ttc ggg gac atg gat	3552
Leu Pro Leu Thr Ala Gly Asp Tyr Ile Tyr Ile Phe Gly Asp Met Asp	
1169 1174 1179 1184	
gag gat ggc ttc tat gag ggg gag ctt gag gat ggc cgg cgg ggg ctg	3600
Glu Asp Gly Phe Tyr Glu Gly Glu Leu Glu Asp Gly Arg Arg Gly Leu	
1185 1190 1195 1200	
gtg ccc tcc aac ttc gtg gag cag att ccg gac agc tac atc cca ggc	3648
Val Pro Ser Asn Phe Val Glu Gln Ile Pro Asp Ser Tyr Ile Pro Gly	
1201 1206 1211 1216	
tgc ctg cct gcc aaa tcc cct gat ctt ggc ccc agt caa ctc cca gcg	3696
Cys Leu Pro Ala Lys Ser Pro Asp Leu Gly Pro Ser Gln Leu Pro Ala	
1217 1222 1227 1232	
ggg cag gat gaa gct ctg gag gaa gac agc tta tta tct ggg aaa gcc	3744
Gly Gln Asp Glu Ala Leu Glu Glu Asp Ser Leu Leu Ser Gly Lys Ala	
1233 1238 1243 1248	
cag gga gtg gtg gac aga ggg ctg tgc cag atg gtc agg gtg ggc tcc	3792
Gln Gly Val Val Asp Arg Gly Leu Cys Gln Met Val Arg Val Gly Ser	
1249 1254 1259 1264	
aag aca gaa gta gca aca gag atc ctg gat acc aag acg gaa gcc tgc	3840
Lys Thr Glu Val Ala Thr Glu Ile Leu Asp Thr Lys Thr Glu Ala Cys	
1265 1270 1275 1280	
cag ctg ggc ttg ctg cag agc atg ggg aag cag ggc ctc tcc aga ccc	3888
Gln Leu Gly Leu Leu Gln Ser Met Gly Lys Gln Gly Leu Ser Arg Pro	
1281 1286 1291 1296	
ctt ctg ggg acc aaa ggg gtg ctc cgt atg gct ccc atg cag cta cac	3936
Leu Leu Gly Thr Lys Gly Val Leu Arg Met Ala Pro Met Gln Leu His	
1297 1302 1307 1312	
ctg cag aat gtc aca gcc aca tca gcc aac atc acc tgg gtc tac agc	3984
Leu Gln Asn Val Thr Ala Thr Ser Ala Asn Ile Thr Trp Val Tyr Ser	
1313 1318 1323 1328	
agc cac cgc cac ccc cat gtg gta tat ctt gat gac cga gag cat gcc	4032
Ser His Arg His Pro His Val Val Tyr Leu Asp Asp Arg Glu His Ala	
1329 1334 1339 1344	
ctg acc cca gcg ggc gtg agc tgc tac acc ttc cag ggc ctg tgc ccc	4080
Leu Thr Pro Ala Gly Val Ser Cys Tyr Thr Phe Gln Gly Leu Cys Pro	
1345 1350 1355 1360	
ggc acg cac tac cgg gcg cgg gtg gag gtg cgg ctg cca cgg gac ttg	4128
Gly Thr His Tyr Arg Ala Arg Val Glu Val Arg Leu Pro Arg Asp Leu	
1361 1366 1371 1376	

ctg cag gtg tat tgg gga act atg tcc tcc acc gtc acc ttc gac aca	4176
Leu Gln Val Tyr Trp Gly Thr Met Ser Ser Thr Val Thr Phe Asp Thr	
1377 1382 1387 1392	
ctc ttg gca gga cct ccc tac cca ccg ctg gat gtg ctg gtg gag cgc	4224
Leu Leu Ala Gly Pro Pro Tyr Pro Pro Leu Asp Val Leu Val Glu Arg	
1393 1398 1403 1408	
cat gcc tcg cca ggt gtc ctg gtg gtc agc tgg ctc cct gtg acc att	4272
His Ala Ser Pro Gly Val Leu Val Val Ser Trp Leu Pro Val Thr Ile	
1409 1414 1419 1424	
gac tca gct ggg tcc tcc aat gga gtc cag gtc acc ggt tat gct gtg	4320
Asp Ser Ala Gly Ser Ser Asn Gly Val Gln Val Thr Gly Tyr Ala Val	
1425 1430 1435 1440	
tat gca gat ggg ctt aag gtt tgt gag gtc gcc gat gcc act gct ggg	4368
Tyr Ala Asp Gly Leu Lys Val Cys Glu Val Ala Asp Ala Thr Ala Gly	
1441 1446 1451 1456	
agc acc cta ttg gaa ttc tcc cag cta cag gtg ccc ctc acg tgg cag	4416
Ser Thr Leu Leu Glu Phe Ser Gln Leu Gln Val Pro Leu Thr Trp Gln	
1457 1462 1467 1472	
aag gtc tca gtg aga acc atg tca ctc tgt ggt gag tcc ctg gat tca	4464
Lys Val Ser Val Arg Thr Met Ser Leu Cys Gly Glu Ser Leu Asp Ser	
1473 1478 1483 1488	
gtg cct gct cag atc ccc gag gac ttc ttc atg tgt cac cga tgg cca	4512
Val Pro Ala Gln Ile Pro Glu Asp Phe Phe Met Cys His Arg Trp Pro	
1489 1494 1499 1504	
gag act cca ccc ttt agc tac act tgt ggc gac cca tcc acc tac aga	4560
Glu Thr Pro Pro Phe Ser Tyr Thr Cys Gly Asp Pro Ser Thr Tyr Arg	
1505 1510 1515 1520	
gtc acc ttc ccc gtc tgc ccc cag aag ctg tca ctg gct cct ccg agt	4608
Val Thr Phe Pro Val Cys Pro Gln Lys Leu Ser Leu Ala Pro Pro Ser	
1521 1526 1531 1536	
gcc aag gcc agc ccc cac aac cct gga agc tgc ggg gag ccc cag gcc	4656
Ala Lys Ala Ser Pro His Asn Pro Gly Ser Cys Gly Glu Pro Gln Ala	
1537 1542 1547 1552	
aag ttc cta gaa gca ttc ttt gaa gaa ccc cca agg agg caa tcc cca	4704
Lys Phe Leu Glu Ala Phe Phe Glu Glu Pro Pro Arg Arg Gln Ser Pro	
1553 1558 1563 1568	
gtg tcc aac ctg ggc tca gaa gga gaa tgt ccg agt tca ggg gct ggc	4752
Val Ser Asn Leu Gly Ser Glu Gly Glu Cys Pro Ser Ser Gly Ala Gly	
1569 1574 1579 1584	
agc caa gcc cag gag ctt gca gag gcc tgg gag ggc tgt aga aag gac	4800
Ser Gln Ala Gln Glu Leu Ala Glu Ala Trp Glu Gly Cys Arg Lys Asp	
1585 1590 1595 1600	
ctg ctc ttt cag aag agt ccc cag aac cac agg cca cct tca gtc agt	4848

Leu	Leu	Phe	Gln	Lys	Ser	Pro	Gln	Asn	His	Arg	Pro	Pro	Ser	Val	Ser		
1601					1606					1611					1616		
gac	cag	cct	ggg	gag	aag	gaa	aat	tgc	tcc	cag	cac	atg	ggc	acc	agc	4896	
Asp	Gln	Pro	Gly	Glu	Lys	Glu	Asn	Cys	Ser	Gln	His	Met	Gly	Thr	Ser		
1617					1622					1627					1632		
aaa	agc	cct	gct	cca	gga	ttc	atc	cat	cta	cgc	acc	gag	tgt	ggg	ccc	4944	
Lys	Ser	Pro	Ala	Pro	Gly	Phe	Ile	His	Leu	Arg	Thr	Glu	Cys	Gly	Pro		
1633					1638					1643					1648		
agg	aaa	gaa	cgc	tgt	cag	gaa	aag	gct	gcc	ctt	gag	agg	gta	ctt	cgg	4992	
Arg	Lys	Glu	Pro	Cys	Gln	Glu	Lys	Ala	Ala	Leu	Glu	Arg	Val	Leu	Arg		
1649					1654					1659					1664		
caa	aag	caa	gat	gcc	caa	ggg	ttc	aca	cct	ccc	cag	ctg	ggc	gcc	agc	5040	
Gln	Lys	Gln	Asp	Ala	Gln	Gly	Phe	Thr	Pro	Pro	Gln	Leu	Gly	Ala	Ser		
1665					1670					1675					1680		
caa	cag	tat	gca	tct	gac	ttc	cat	aac	gtt	ttg	aag	gag	gag	cag	gag	5088	
Gln	Gln	Tyr	Ala	Ser	Asp	Phe	His	Asn	Val	Leu	Lys	Glu	Glu	Gln	Glu		
1681					1686					1691					1696		
gca	ctg	tgc	ttg	gat	ctg	tgg	ggc	aca	gag	agg	cga	gag	gag	agg	agg	5136	
Ala	Leu	Cys	Leu	Asp	Leu	Trp	Gly	Thr	Glu	Arg	Arg	Glu	Glu	Arg	Arg		
1697					1702					1707					1712		
gag	cct	gag	ccc	cac	agc	agg	caa	gga	caa	gct	ctg	ggg	gtg	aag	aga	5184	
Glu	Pro	Glu	Pro	His	Ser	Arg	Gln	Gly	Gln	Ala	Leu	Gly	Val	Lys	Arg		
1713					1718					1723					1728		
ggg	tgc	cag	ctc	cat	gag	ccc	agc	tcg	gca	ctg	tgt	cca	gct	cca	tcc	5232	
Gly	Cys	Gln	Leu	His	Glu	Pro	Ser	Ser	Ala	Leu	Cys	Pro	Ala	Pro	Ser		
1729					1734					1739					1744		
gcc	aaa	gtc	atc	aag	atg	ccc	agg	ggt	ggc	ccc	caa	cag	ctg	ggg	acg	5280	
Ala	Lys	Val	Ile	Lys	Met	Pro	Arg	Gly	Gly	Pro	Gln	Gln	Leu	Gly	Thr		
1745					1750					1755					1760		
ggg	gcc	aac	act	cca	gcc	agg	gtc	ttt	gtg	gcc	ctc	tct	gat	tac	aac	5328	
Gly	Ala	Asn	Thr	Pro	Ala	Arg	Val	Phe	Val	Ala	Leu	Ser	Asp	Tyr	Asn		
1761					1766					1771					1776		
ccc	ctg	gtg	atg	tct	gcc	aac	ctc	aag	gct	gca	gag	gag	gag	ctg	gtc	5376	
Pro	Leu	Val	Met	Ser	Ala	Asn	Leu	Lys	Ala	Ala	Glu	Glu	Glu	Leu	Val		
1777					1782					1787					1792		
ttc	cag	aaa	agg	cag	ttg	cta	aga	gtg	tgg	ggc	tct	cag	gac	acc	cat	5424	
Phe	Gln	Lys	Arg	Gln	Leu	Leu	Arg	Val	Trp	Gly	Ser	Gln	Asp	Thr	His		
1793					1798					1803					1808		
gat	ttc	tac	ctc	agc	gag	tgc	aac	agg	caa	gtg	ggc	aat	atc	ccc	ggg	5472	
Asp	Phe	Tyr	Leu	Ser	Glu	Cys	Asn	Arg	Gln	Val	Gly	Asn	Ile	Pro	Gly		
1809					1814					1819					1824		
cgc	cta	gtg	gct	gag	atg	gag	gtg	ggg	aca	gag	cag	act	gat	agg	agg	5520	
Arg	Leu	Val	Ala	Glu	Met	Glu	Val	Gly	Thr	Glu	Gln	Thr	Asp	Arg	Arg		

1825	1830	1835	1840	
tgg cgt tct ccg gcc caa ggg cac ctg cct tct gtg gcc cac ctc gag				5568
Trp Arg Ser Pro Ala Gln Gly His Leu Pro Ser Val Ala His Leu Glu				
1841	1846	1851	1856	
gac ttt cag ggg ctc acc atc ccc cag ggt tcc tcc ctg gtg ctc cag				5616
Asp Phe Gln Gly Leu Thr Ile Pro Gln Gly Ser Ser Leu Val Leu Gln				
1857	1862	1867	1872	
ggg aac tcc aag aga ctc cca ctg tgg act cca aag atc atg ata gca				5664
Gly Asn Ser Lys Arg Leu Pro Leu Trp Thr Pro Lys Ile Met Ile Ala				
1873	1878	1883	1888	
gct ctg gac tat gat cct ggg gat ggg caa atg ggg ggc cag ggg aag				5712
Ala Leu Asp Tyr Asp Pro Gly Asp Gly Gln Met Gly Gly Gln Gly Lys				
1889	1894	1899	1904	
ggc agg ctg gcg ctg agg gca gga gac gtg gtc atg gtt tac ggg ccc				5760
Gly Arg Leu Ala Leu Arg Ala Gly Asp Val Val Met Val Tyr Gly Pro				
1905	1910	1915	1920	
atg gat gac caa gga ttc tat tat gga gag ttg ggc ggc cac agg ggc				5808
Met Asp Asp Gln Gly Phe Tyr Tyr Gly Glu Leu Gly Gly His Arg Gly				
1921	1926	1931	1936	
ctg gtt cct gcc cac ctg ctg gat cac atg tcc ctc cat gga cac tga				5856
Leu Val Pro Ala His Leu Leu Asp His Met Ser Leu His Gly His *				
1937	1942	1947	1952	
gcaagcatcc ttgccaggt agtggcctct ggctgctcac accctgccag aggagaagca				5916
agcgttcaga cctcacacc agcaccctc ctcaccacca taagtagcat gtgctccaag				5976
tgccactgtg ttaaactgat ggtagtcctt aagtgtcccc taggctctga aagtagcagg				6036
acttaagcct gagttatttg caaaagcaaa cacaacaagc caaccctga gagtctgaga				6096
agccatttca aagttgtgta taactatggc aggtatacgg agaagcgcct ttttctgtgg				6156
ccaatgtgtg ttttctctgg gaggttaagg ttatctgtcc attgccttgt acgaaagtct				6216
caagaaaagt ctacatctta aaaaaaaaaa aa				6248

<210> 163  
 <211> 1265  
 <212> DNA  
 <213> Homo sapiens  
  
 <220>  
 <221> CDS  
 <222> (204) .. (1265)  
  
 <400> 163



cgg aac ctg acc aac gtg ctg ggc acc cag tcc cgc tac gtc ctc aac	854
Arg Asn Leu Thr Asn Val Leu Gly Thr Gln Ser Arg Tyr Val Leu Asn	
202 207 212 217	
ggc gcg ttc ctg gcc ttc gag cgc cgg cac gag ttc atg gcg ctg tgc	902
Gly Ala Phe Leu Ala Phe Glu Arg Arg His Glu Phe Met Ala Leu Cys	
218 223 228 233	
atg cgg gac ttc gtg gac cac tac aac ggc tgg atc tgg ggt cac cag	950
Met Arg Asp Phe Val Asp His Tyr Asn Gly Trp Ile Trp Gly His Gln	
234 239 244 249	
ggc ccg cag ctg ctc acg cgg gtc ttc aag aag tgg tgt tcc atc cgc	998
Gly Pro Gln Leu Leu Thr Arg Val Phe Lys Lys Trp Cys Ser Ile Arg	
250 255 260 265	
agc ctg gcc gag agc cgc gcc tgc cgc ggc gtc acc acc ctg ccc cct	1046
Ser Leu Ala Glu Ser Arg Ala Cys Arg Gly Val Thr Thr Leu Pro Pro	
266 271 276 281	
gag gcc ttc tac ccc atc ccc tgg cag gac tgg aag aag tac ttt gag	1094
Glu Ala Phe Tyr Pro Ile Pro Trp Gln Asp Trp Lys Lys Tyr Phe Glu	
282 287 292 297	
gac atc aac ccg gag gag ctg ccg cgg ctg ctc agt gcc acc tat gct	1142
Asp Ile Asn Pro Glu Glu Leu Pro Arg Leu Leu Ser Ala Thr Tyr Ala	
298 303 308 313	
gtc cac gtg tgg aac aag aag agc cag ggc acg cgg ttc gag gcc acg	1190
Val His Val Trp Asn Lys Lys Ser Gln Gly Thr Arg Phe Glu Ala Thr	
314 319 324 329	
tcc agg gca ctg ctg gcc cag ctg cat gcc cgc tac tgc ccc acg acg	1238
Ser Arg Ala Leu Leu Ala Gln Leu His Ala Arg Tyr Cys Pro Thr Thr	
330 335 340 345	
cac gag gcc atg aaa atg tac ttg tga	1265
His Glu Ala Met Lys Met Tyr Leu *	
346 351	

<210> 164  
 <211> 1825  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1) .. (1587)

<400> 164	
atg gca aag gtc att ctg aag cag agt aaa caa tgc aag aat ctg ctt	48
Met Ala Lys Val Ile Leu Lys Gln Ser Lys Gln Cys Lys Asn Leu Leu	

1	5	10	
acc tgc aaa gtg gcc cag gtc tgc ccc gta tgt ggc tgt ctt cat tgt			96
Thr Cys Lys Val Ala Gln Val Cys Pro Val Cys Gly Cys Leu His Cys			
17	22	27	32
tat ttc tgg tgg ctc tca ggt ctt gag tca aga cgt ccc agc tct cca			144
Tyr Phe Trp Trp Leu Ser Gly Leu Glu Ser Arg Arg Pro Ser Ser Pro			
33	38	43	48
ctc atc gat att aaa ccc atc gag ttt ggc gtt ctc agc gcc aag aag			192
Leu Ile Asp Ile Lys Pro Ile Glu Phe Gly Val Leu Ser Ala Lys Lys			
49	54	59	64
gag ccc atc caa cct tcg gtg ctc aga cgg acc tat aac ccc gac gac			240
Glu Pro Ile Gln Pro Ser Val Leu Arg Arg Thr Tyr Asn Pro Asp Asp			
65	70	75	80
tat ttc agg aag ttc gaa ccc cac ctg tac tcc ctc gac tcc aac agc			288
Tyr Phe Arg Lys Phe Glu Pro His Leu Tyr Ser Leu Asp Ser Asn Ser			
81	86	91	96
gac gat gtg gac tct ctg aca gac gag gag atc ctg tcc aag tac cag			336
Asp Asp Val Asp Ser Leu Thr Asp Glu Glu Ile Leu Ser Lys Tyr Gln			
97	102	107	112
ctg ggc atg ctg cac ttc agc act cag tac gac ctg ctg cac aac cac			384
Leu Gly Met Leu His Phe Ser Thr Gln Tyr Asp Leu Leu His Asn His			
113	118	123	128
ctc acc gtg cgc gtg atc gag gcc agg gac ctg cca cct ccc atc tcc			432
Leu Thr Val Arg Val Ile Glu Ala Arg Asp Leu Pro Pro Pro Ile Ser			
129	134	139	144
cac gat ggc tcg cgc cag gac atg gcg cac tcc aac ccc tac gtc aag			480
His Asp Gly Ser Arg Gln Asp Met Ala His Ser Asn Pro Tyr Val Lys			
145	150	155	160
atc tgt ctc ctg cca gac cag aag aac tca aag cag acc ggg gtc aaa			528
Ile Cys Leu Leu Pro Asp Gln Lys Asn Ser Lys Gln Thr Gly Val Lys			
161	166	171	176
cgc aag acc cag aag ccc gtg ttt gag gag cgc tac acc ttc gag atc			576
Arg Lys Thr Gln Lys Pro Val Phe Glu Glu Arg Tyr Thr Phe Glu Ile			
177	182	187	192
ccc ttc ctg gag gcc cag agg agg acc ctg ctc ctg acc gtg gtg gat			624
Pro Phe Leu Glu Ala Gln Arg Arg Thr Leu Leu Leu Thr Val Val Asp			
193	198	203	208
ttt gat aag ttc tcc cgc cac tgt gtc att ggg aaa gtt tct gtg cct			672
Phe Asp Lys Phe Ser Arg His Cys Val Ile Gly Lys Val Ser Val Pro			
209	214	219	224
ttg tgt gaa gtt gac ctg gtc aag ggc ggg cac tgg tgg aag gcg cat			720
Leu Cys Glu Val Asp Leu Val Lys Gly Gly His Trp Trp Lys Ala His			
225	230	235	240

gat Asp 241	tcc Ser	cag Gln	ttc Phe	tca Ser	gca Ala 246	cca Pro	ggc Gly	ttg Leu	ccc Pro	gcc Ala 251	gat Asp	caa Gln	caa Gln	ttt Phe	ttc Phe 256	768
gcc Ala 257	gat Asp	ctg Leu	ttc Phe	agc Ser	ggc Gly 262	ctg Leu	gtg Val	ctt Leu	aac Asn	ccg Pro 267	caa Gln	cta Leu	ctg Leu	ggg Gly	cgc Arg 272	816
gtc Val 273	tgg Trp	ttt Phe	gcc Ala	agc Ser	cag Gln 278	cct Pro	gcc Ala	tcg Ser	ttg Leu	ccg Pro 283	gtg Val	ggc Gly	agt Ser	tta Leu	tgt Cys 288	864
att Ile 289	gat Asp	ttt Phe	ccc Pro	cgt Arg	ctg Leu 294	gat Asp	atc Ile	gtg Val	ctg Leu	cgc Arg 299	ggc Gly	gaa Glu	tac Tyr	ggc Gly	aat Asn 304	912
ctg Leu 305	ctg Leu	gaa Glu	gca Ala	aag Lys	cag Gln 310	caa Gln	cgt Arg	ttg Leu	gtg Val	gaa Glu 315	gga Gly	gaa Glu	atg Met	ctg Leu	ttt Phe 320	960
att Ile 321	ccg Pro	gcg Ala	cgc Arg	gcg Ala	gct Ala 326	aat Asn	tta Leu	ccg Pro	gtc Val	aac Asn 331	aac Asn	aaa Lys	ccg Pro	gtg Val	atg Met 336	1008
ctg Leu 337	tta Leu	agc Ser	ctg Leu	gtg Val	ttc Phe 342	gct Ala	ccg Pro	acc Thr	tgg Trp	ctt Leu 347	ggg Gly	tta Leu	tcg Ser	ttt Phe	tac Tyr 352	1056
gat Asp 353	agc Ser	cgc Arg	acc Thr	acg Thr	tcg Ser 358	ttg Leu	ttg Leu	cat His	cct Pro	gct Ala 363	cgc Arg	cag Gln	atc Ile	cag Gln	ctt Leu 368	1104
ccc Pro 369	agc Ser	ctg Leu	caa Gln	cgc Arg	ggt Gly 374	gaa Glu	ggt Gly	gaa Glu	gcg Ala	atg Met 379	ctt Leu	acc Thr	gcc Ala	ctc Leu	acc Thr 384	1152
cat His 385	ctt Leu	agc Ser	cgt Arg	tcg Ser	ccg Pro 390	ctg Leu	gag Glu	caa Gln	aat Asn	atc Ile 395	att Ile	cag Gln	ccg Pro	ctg Leu	gtg Val 400	1200
tta Leu 401	agt Ser	ttg Leu	ctg Leu	cat His	ctt Leu 406	tgc Cys	cgt Arg	agc Ser	gtg Val	gtg Val 411	aat Asn	atg Met	ccg Pro	ccg Pro	ggc Gly 416	1248
aat Asn 417	tcg Ser	cag Gln	ccg Pro	cgc Arg	ggc Gly 422	gat Asp	ttt Phe	ctc Leu	tat Tyr	cac His 427	agc Ser	att Ile	tgt Cys	aac Asn	tgg Trp 432	1296
gtt Val 433	cag Gln	gat Asp	aat Asn	tat Tyr	gcc Ala 438	cag Gln	ccg Pro	ctc Leu	acc Thr	cgc Arg 443	gag Glu	agc Ser	gtg Val	gcg Ala	cag Gln 448	1344
ttt Phe 449	ttt Phe	aat Asn	atc Ile	acg Thr	ccc Pro 454	aat Asn	cat His	ctg Leu	tca Ser	aaa Lys 459	ctg Leu	ttt Phe	gct Ala	cag Gln	cat His 464	1392

gga acg atg cgt ttt atc gag tat gtg cgt tgg gtg cga atg gcg aag	1440
Gly Thr Met Arg Phe Ile Glu Tyr Val Arg Trp Val Arg Met Ala Lys	
465 470 475 480	

gcg agg atg att ttg cag aaa tat cat ctg tca att cat gaa gtg gca	1488
Ala Arg Met Ile Leu Gln Lys Tyr His Leu Ser Ile His Glu Val Ala	
481 486 491 496	

cag cgt tgc ggt ttt ccg gat agc gac tat ttt tgt cgc gtt ttc cgg	1536
Gln Arg Cys Gly Phe Pro Asp Ser Asp Tyr Phe Cys Arg Val Phe Arg	
497 502 507 512	

cgt cag ttt ggt ctg acg ccg gga gag tac agc gcc cgt ttt cag ggc	1584
Arg Gln Phe Gly Leu Thr Pro Gly Glu Tyr Ser Ala Arg Phe Gln Gly	
513 518 523 528	

taa cgtc agaagggttaa ttctgtttcc agcagcgtca ggatactttg tgcattctgc	1641
*	
529	

ggggcaaaaca acgactggcg gaagttttta ttcaccagtt tacgcgccag ctgcgagaag	1701
--	------

actttcacat gattcatccc ttcgtttagca cccagcgtca gcatgatcac cagttcgact	1761
--	------

tcgcccattt ctgactgccca gccaatcggt ttcgccagcc gggcaatgct gatactggaa	1821
--	------

tgac	1825
------	------

<210> 165  
 <211> 4880  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (225) .. (3248)

<400> 165	
cgctgcagg taccgggtccg gaattcccgg gtgcagcatt tcgtgagaat cagagagaga	60
gagagtctgt gtctctggga aagaagaaca tctctgcttc acagtgattt gcgctggggg	120
agaggcatca attggcttcg gacccaaggg ggagacgaga ccaggtcacc ccggttaaga	180
ccaagtgagc gttgcccctc cctctcccaa ctctctaccc ggga atg tct cgg cga	236
Met Ser Arg Arg	
1	

aag cag cgg aaa ccc caa cag tta atc tcg gac tgc gaa ggt ccc agc	284
Lys Gln Arg Lys Pro Gln Gln Leu Ile Ser Asp Cys Glu Gly Pro Ser	
5 10 15 20	

gcg tct gag aac ggt gat gct agc gag gag gat cac ccc caa gtc tgt	332
Ala Ser Glu Asn Gly Asp Ala Ser Glu Glu Asp His Pro Gln Val Cys	

21	26	31	36	
gcc aag tgc tgc gca	caa ttc act gac cca	act gaa ttc ctc gcc	cac	380
Ala Lys Cys Cys Ala	Gln Phe Thr Asp Pro	Thr Glu Phe Leu Ala	His	
37	42	47	52	
cag aac gca tgt tct	act gac cct cct gta	atg gtg ata att ggg	ggc	428
Gln Asn Ala Cys Ser	Thr Asp Pro Pro Val	Met Val Ile Ile Gly	Gly	
53	58	63	68	
cag gag aac ccc aac	aac tct tgc gcc tcc	tct gaa ccc cgg cct	gag	476
Gln Glu Asn Pro Asn	Asn Ser Ser Ala Ser	Ser Glu Pro Arg Pro	Glu	
69	74	79	84	
ggt cac aat aat cct	cag gtc atg gac aca	gag cat agc aac ccc	cca	524
Gly His Asn Asn Pro	Gln Val Met Asp Thr	Glu His Ser Asn Pro	Pro	
85	90	95	100	
gat tct ggg tcc tcc	gtg ccc acg gat ccc	acc tgg ggc cca gag	agg	572
Asp Ser Gly Ser Ser	Val Pro Thr Asp Pro	Thr Trp Gly Pro Glu	Arg	
101	106	111	116	
aga gga gag gag tct	tca ggg cat ttc ctg	gtc gct gcc aca ggt	aca	620
Arg Gly Glu Glu Ser	Ser Gly His Phe Leu	Val Ala Ala Thr Gly	Thr	
117	122	127	132	
gcg gct ggg gga ggc	ggg ggc ctg atc ttg	gcc agt ccc aag ctg	gga	668
Ala Ala Gly Gly Gly	Gly Gly Leu Ile Leu	Ala Ser Pro Lys Leu	Gly	
133	138	143	148	
gca acc cca tta cct	cca gaa tgc acc cct	gca ccc cct cct cct	cca	716
Ala Thr Pro Leu Pro	Pro Glu Ser Thr Pro	Ala Pro Pro Pro Pro	Pro	
149	154	159	164	
cca ccc cct ccg ccc	cca ggg gta ggc agt	ggc cac ttg aat atc	ccc	764
Pro Pro Pro Pro Pro	Pro Gly Val Gly Ser	Gly His Leu Asn Ile	Pro	
165	170	175	180	
ctg atc ttg gaa gag	cta cgg gtg ctg cag	cag cgg cag atc cat	cag	812
Leu Ile Leu Glu Glu	Leu Arg Val Leu Gln	Gln Arg Gln Ile His	Gln	
181	186	191	196	
atg cag atg act gag	caa atc tgc agg cag	gtg ctg ttg ctt ggc	tcc	860
Met Gln Met Thr Glu	Gln Ile Cys Arg Gln	Val Leu Leu Leu Gly	Ser	
197	202	207	212	
tta ggc cag acg gtg	ggt gcc cct gcc agt	ccc tca gag cta cct	ggg	908
Leu Gly Gln Thr Val	Gly Ala Pro Ala Ser	Pro Ser Glu Leu Pro	Gly	
213	218	223	228	
aca ggg act gcc tct	tcc acc aag ccc cta	cta ccc ctc ttc agc	ccc	956
Thr Gly Thr Ala Ser	Ser Thr Lys Pro Leu	Leu Pro Leu Phe Ser	Pro	
229	234	239	244	
atc aag cct gtc caa	acc agc aag aca ctg	gca tct tcc tcc tcc	tcc	1004
Ile Lys Pro Val Gln	Thr Ser Lys Thr Leu	Ala Ser Ser Ser Ser	Ser	
245	250	255	260	

tcc tct tcc tct tca ggg gca gaa acg ccc aag cag gcc ttc ttc cac	1052
Ser Ser Ser Ser Ser Gly Ala Glu Thr Pro Lys Gln Ala Phe Phe His	
261 266 271 276	
ctt tac cac cca ctg ggg tca cag cat cct ttc tct gct gga ggg gtt	1100
Leu Tyr His Pro Leu Gly Ser Gln His Pro Phe Ser Ala Gly Gly Val	
277 282 287 292	
ggg cga agc cac aaa ccc acc cct gcc cct tcc cca gcc ttg cca ggc	1148
Gly Arg Ser His Lys Pro Thr Pro Ala Pro Ser Pro Ala Leu Pro Gly	
293 298 303 308	
agc aca gat cag ctg att gcc tcg cct cat ctg gca ttc cca agc acc	1196
Ser Thr Asp Gln Leu Ile Ala Ser Pro His Leu Ala Phe Pro Ser Thr	
309 314 319 324	
acg gga cta ctg gca gca cag tgt ctt ggg gca gcc cga ggc ctt gag	1244
Thr Gly Leu Leu Ala Ala Gln Cys Leu Gly Ala Ala Arg Gly Leu Glu	
325 330 335 340	
gcc act gcc tcc cca ggg ctc ctg aag cca aag aat gga agt ggt gag	1292
Ala Thr Ala Ser Pro Gly Leu Leu Lys Pro Lys Asn Gly Ser Gly Glu	
341 346 351 356	
ctg agc tac gga gaa gtg atg ggt ccc ttg gag aag cct ggt gga agg	1340
Leu Ser Tyr Gly Glu Val Met Gly Pro Leu Glu Lys Pro Gly Gly Arg	
357 362 367 372	
cac aaa tgc cgc ttc tgt gcc aaa gta ttt ggc agt gac agt gcc ctg	1388
His Lys Cys Arg Phe Cys Ala Lys Val Phe Gly Ser Asp Ser Ala Leu	
373 378 383 388	
cag atc cac ctt cgt tcc cac acg ggt gag agg ccc tat aag tgc aat	1436
Gln Ile His Leu Arg Ser His Thr Gly Glu Arg Pro Tyr Lys Cys Asn	
389 394 399 404	
gtc tgt gga aac cgt ttt acc acc cgt ggc aac ctc aaa gtg cat ttc	1484
Val Cys Gly Asn Arg Phe Thr Thr Arg Gly Asn Leu Lys Val His Phe	
405 410 415 420	
cac cgg cat cgt gag aag tac cca cat gtg cag atg aac cca cac cca	1532
His Arg His Arg Glu Lys Tyr Pro His Val Gln Met Asn Pro His Pro	
421 426 431 436	
gta cca gag cac cta gac tat gtc att acc agc agt ggc ttg cct tat	1580
Val Pro Glu His Leu Asp Tyr Val Ile Thr Ser Ser Gly Leu Pro Tyr	
437 442 447 452	
ggg atg tcc gtg cca cca gag aag gcc gag gag gag gca gcc act cca	1628
Gly Met Ser Val Pro Pro Glu Lys Ala Glu Glu Glu Ala Ala Thr Pro	
453 458 463 468	
ggg gga ggg gtt gag cgc aag cct ctg gtg gcc tcc aca aca gca ctc	1676
Gly Gly Gly Val Glu Arg Lys Pro Leu Val Ala Ser Thr Thr Ala Leu	
469 474 479 484	

agt Ser 485	gcc Ala	aca Thr	gag Glu	agc Ser	ctg Leu 490	act Thr	ctg Leu	ctc Leu	tcc Ser	acc Thr 495	agt Ser	gca Ala	ggc Gly	aca Thr	gcc Ala 500	1724
acg Thr 501	gct Ala	cca Pro	gga Gly	ctc Leu	cct Pro 506	gct Ala	ttc Phe	aat Asn	aag Lys	ttt Phe 511	gtg Val	ctc Leu	atg Met	aaa Lys	gca Ala 516	1772
gtg Val 517	gaa Glu	ccc Pro	aag Lys	aat Asn	aaa Lys 522	gct Ala	gat Asp	gaa Glu	aac Asn	acc Thr 527	ccc Pro	cca Pro	ggg Gly	agt Ser	gag Glu 532	1820
ggc Gly 533	tca Ser	gcc Ala	atc Ile	agt Ser	gga Gly 538	gtg Val	gca Ala	gaa Glu	agt Ser	agc Ser 543	acg Thr	gca Ala	act Thr	ctc Leu	atg Met 548	1868
caa Gln 549	cta Leu	agt Ser	aag Lys	ttg Leu	atg Met 554	act Thr	tca Ser	cta Leu	cca Pro	agc Ser 559	tgg Trp	gca Ala	ctg Leu	ctt Leu	acc Thr 564	1916
aac Asn 565	cac His	ttc Phe	aag Lys	tcc Ser	act Thr 570	ggc Gly	agc Ser	ttc Phe	cgc Pro	ctt Leu 575	ccc Pro	cta Leu	tgt Cys	gct Ala	aga Arg 580	1964
gcc Ala 581	ttg Leu	ggg Gly	gcc Ala	tca Ser	ccc Pro 586	tct Ser	gag Glu	aca Thr	tca Ser	aag Lys 591	ctg Leu	cag Gln	caa Gln	ctg Leu	gta Val 596	2012
gaa Glu 597	aag Lys	att Ile	gac Asp	cgg Arg	caa Gln 602	gga Gly	gct Ala	gtg Val	gcg Ala	gtg Val 607	acc Thr	tca Ser	gct Ala	gcc Ala	tca Ser 612	2060
gga Gly 613	gcc Ala	ccc Pro	acc Thr	acc Thr	tct Ser 618	gcc Ala	cct Pro	gca Ala	cct Pro	tca Ser 623	tcc Ser	tca Ser	gcc Ala	tct Ser	tct Ser 628	2108
gga Gly 629	cct Pro	aac Asn	cag Gln	tgt Cys	gtc Val 634	atc Ile	tgt Cys	ctc Leu	cga Arg	gtg Val 639	ctt Leu	agc Ser	tgt Cys	cct Pro	cgg Arg 644	2156
gcc Ala 645	cta Leu	cgc Arg	ctt Leu	cat His	tat Tyr 650	ggc Gly	caa Gln	cat His	gga Gly	ggc Gly 655	gag Glu	agg Arg	ccc Pro	ttc Phe	aaa Lys 660	2204
tgc Cys 661	aaa Lys	gtg Val	tgt Cys	ggc Gly	aga Arg 666	gcc Ala	ttc Phe	tcc Ser	acc Thr	agg Arg 671	ggc Gly	aat Asn	ctg Leu	cgt Arg	gca Ala 676	2252
cat His 677	ttc Phe	gtg Val	ggc Gly	cac His	aag Lys 682	gcc Ala	agt Ser	cca Pro	gct Ala	gcc Ala 687	cgg Arg	gca Ala	cag Gln	aat Asn	tcc Ser 692	2300
tgc Cys 693	ccc Pro	atc Ile	tgc Cys	cag Gln	aag Lys 698	aag Lys	ttc Phe	acc Thr	aat Asn	gct Ala 703	gtc Val	act Thr	ctg Leu	cag Gln	cag Gln 708	2348
cat	gtc	cgg	atg	cac	ctg	ggg	ggc	cag	atc	ccc	aac	ggc	ggc	act	gca	2396

His	Val	Arg	Met	His	Leu	Gly	Gly	Gln	Ile	Pro	Asn	Gly	Gly	Thr	Ala		
709					714					719					724		
ctc	cct	gaa	ggt	gga	gga	gct	gct	cag	gag	aat	ggc	tcc	gag	caa	tct	2444	
Leu	Pro	Glu	Gly	Gly	Gly	Ala	Ala	Gln	Glu	Asn	Gly	Ser	Glu	Gln	Ser		
725					730					735					740		
aca	gtc	tcc	gga	gca	ggg	agt	ttc	ccc	cag	cag	cag	tcc	cag	cag	cca	2492	
Thr	Val	Ser	Gly	Ala	Gly	Ser	Phe	Pro	Gln	Gln	Gln	Ser	Gln	Gln	Pro		
741					746					751					756		
tca	ccg	gaa	gag	gag	ttg	tct	gag	gag	gag	gaa	gag	gag	gat	gag	gaa	2540	
Ser	Pro	Glu	Glu	Glu	Leu	Ser	Glu	Glu	Glu	Glu	Glu	Glu	Asp	Glu	Glu		
757					762					767					772		
gaa	gag	gaa	gat	gtg	act	gat	gaa	gat	tcc	ctg	gca	ggg	aga	ggc	tca	2588	
Glu	Glu	Glu	Asp	Val	Thr	Asp	Glu	Asp	Ser	Leu	Ala	Gly	Arg	Gly	Ser		
773					778					783					788		
gag	agt	gga	ggt	gag	aag	gca	ata	tca	gtg	aga	ggg	gat	tca	gaa	gag	2636	
Glu	Ser	Gly	Gly	Glu	Lys	Ala	Ile	Ser	Val	Arg	Gly	Asp	Ser	Glu	Glu		
789					794					799					804		
gca	tct	ggg	gca	gag	gag	gag	gtg	ggg	aca	gtg	gcg	gca	gca	gcc	aca	2684	
Ala	Ser	Gly	Ala	Glu	Glu	Glu	Val	Gly	Thr	Val	Ala	Ala	Ala	Ala	Thr		
805					810					815					820		
gct	ggg	aag	gag	atg	gac	agt	aat	gag	aaa	act	act	caa	cag	tct	tct	2732	
Ala	Gly	Lys	Glu	Met	Asp	Ser	Asn	Glu	Lys	Thr	Thr	Gln	Gln	Ser	Ser		
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Arg	Lys	Glu	Pro	Gly	Glu	Ser	Ser	Ser	Arg	Lys	Ala	Cys	Glu	Val	Cys		
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His	Pro	Lys	Glu	Gly	Pro	Leu	Phe	Thr	Cys	Val	Phe	Cys	Arg	Gln	Gly		

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Gln Val Gln Pro Phe Ala Pro His Gly Pro Gln Asn Ile Ala Ala Leu				
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 Met Ala Asn Leu Glu Glu Ser Phe Pro Arg Gly Gly Thr Arg Lys Ile  
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 His Lys Pro Glu Lys Ala Phe Gln Gln Ser Val Glu Gln Asp Asn Leu  
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 Phe Asp Ile Ser Thr Glu Glu Gly Ser Thr Lys Arg Lys Lys Ser Gln  
 47 52 57 62  
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 Lys Gly Pro Ala Lys Thr Lys Lys Leu Lys Ile Glu Lys Arg Glu Ser  
 63 68 73 78  
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 Ser Lys Ser Ala Arg Glu Lys Phe Glu Ile Leu Ser Val Glu Ser Leu  
 79 84 89 94  
 tgt gag gga atg cgt att ttg ggt tgc gtg aaa gag gtg aat gaa ctg 335  
 Cys Glu Gly Met Arg Ile Leu Gly Cys Val Lys Glu Val Asn Glu Leu  
 95 100 105 110  
 gaa ctg gtg att agt ctc ccc aat ggc ctc cag ggc ttt gtg caa gtc 383

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111					116					121					126		
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127					132					137					142		
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Gln	Glu	Gln	Pro	Leu	Lys	Asp	Leu	Leu	His	Leu	Pro	Glu	Leu	Phe	Ser		
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Pro	Gly	Met	Leu	Val	Arg	Cys	Val	Val	Ser	Ser	Leu	Gly	Ile	Thr	Asp		
159					164					169					174		
agg	ggc	aag	aag	agt	gtc	aag	ctg	tct	ctg	aac	ccc	aaa	aat	gtc	aac	575	
Arg	Gly	Lys	Lys	Ser	Val	Lys	Leu	Ser	Leu	Asn	Pro	Lys	Asn	Val	Asn		
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191					196					201					206		
acc	gta	tcc	agc	ctg	gaa	gac	cat	ggc	tac	cta	gtg	gac	att	ggt	gtt	671	
Thr	Val	Ser	Ser	Leu	Glu	Asp	His	Gly	Tyr	Leu	Val	Asp	Ile	Gly	Val		
207					212					217					222		
gat	ggg	acc	aga	gct	ttt	ctg	cca	ctg	ctg	aaa	gcc	cag	gag	tac	atc	719	
Asp	Gly	Thr	Arg	Ala	Phe	Leu	Pro	Leu	Leu	Lys	Ala	Gln	Glu	Tyr	Ile		
223					228					233					238		
aga	cag	aag	aac	aaa	ggt	gct	aaa	cta	aag	gtg	ggt	cag	tac	ctg	aac	767	
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Cys	Ile	Val	Glu	Lys	Val	Lys	Gly	Asn	Gly	Gly	Val	Val	Ser	Leu	Ser		
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Val	Gly	His	Ser	Glu	Val	Ser	Thr	Ala	Ile	Ala	Thr	Glu	Gln	Gln	Ser		
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Trp	Asn	Leu	Asn	Asn	Leu	Leu	Pro	Gly	Leu	Val	Val	Lys	Ala	Gln	Val		
287					292					297					302		
cag	aag	gtg	act	cca	ttt	ggc	ctt	acg	cta	aac	ttc	ctc	aca	ttc	ttc	959	
Gln	Lys	Val	Thr	Pro	Phe	Gly	Leu	Thr	Leu	Asn	Phe	Leu	Thr	Phe	Phe		
303					308					313					318		
acg	ggc	gtg	gtt	gac	ttt	atg	cac	ctg	gat	ccc	aag	aaa	gct	gga	aca	1007	
Thr	Gly	Val	Val	Asp	Phe	Met	His	Leu	Asp	Pro	Lys	Lys	Ala	Gly	Thr		
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tat	ttc	tca	aat	cag	gca	gtg	agg	gcc	tgc	atc	ctt	tgc	gtc	cat	cct	1055	
Tyr	Phe	Ser	Asn	Gln	Ala	Val	Arg	Ala	Cys	Ile	Leu	Cys	Val	His	Pro		

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cga acc aga gtt gtg	cac ctg agc ctg	cgc ccc atc ttc cta cag cct		1103
Arg Thr Arg Val Val	His Leu Ser Leu	Arg Pro Ile Phe Leu Gln Pro		
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Gly Arg Pro Leu Thr	Arg Leu Ser Cys	Gln Asn Leu Gly Ala Val Leu		
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Asp Asp Val Pro Val	Gln Gly Phe Phe	Lys Lys Ala Gly Ala Thr Phe		
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agg ctg aag gat ggg	gtt ctg gcc tat	gcc cgg ctc agc cat ctc tct		1247
Arg Leu Lys Asp Gly	Val Leu Ala Tyr	Ala Arg Leu Ser His Leu Ser		
399	404	409	414	
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Asp Ser Lys Asn Val	Phe Asn Pro Glu	Ala Phe Lys Pro Gly Asn Thr		
415	420	425	430	
cac aag tgt aga att	att gac tac agc	caa atg gat gaa ctg gcc ttg		1343
His Lys Cys Arg Ile	Ile Asp Tyr Ser	Gln Met Asp Glu Leu Ala Leu		
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ctc tct cta cga acg	tct att att gaa	gct cag tac ctt aga tat cat		1391
Leu Ser Leu Arg Thr	Ser Ile Ile Glu	Ala Gln Tyr Leu Arg Tyr His		
447	452	457	462	
gac atc gaa cct ggg	gca gtg gta aag	ggc aca gtg cta acc ata aag		1439
Asp Ile Glu Pro Gly	Ala Val Val Lys	Gly Thr Val Leu Thr Ile Lys		
463	468	473	478	
tca tat ggg atg ctg	gtg aag gtg ggc	gag cag atg agg ggc ctg gta		1487
Ser Tyr Gly Met Leu	Val Lys Val Gly	Glu Gln Met Arg Gly Leu Val		
479	484	489	494	
cct ccc atg cac ctg	gct gac atc ctg	atg aag aat ccg gag aag aag		1535
Pro Pro Met His Leu	Ala Asp Ile Leu	Met Lys Asn Pro Glu Lys Lys		
495	500	505	510	
tac cac atc ggg gat	gag gtc aag tgc	cgg gtt ttg ctt tgt gac cct		1583
Tyr His Ile Gly Asp	Glu Val Lys Cys	Arg Val Leu Leu Cys Asp Pro		
511	516	521	526	
gaa gcc aag aag ctg	atg atg acc ctg	aaa aaa acc ctg att gag tcc		1631
Glu Ala Lys Lys Leu	Met Met Thr Leu	Lys Lys Thr Leu Ile Glu Ser		
527	532	537	542	
aaa cta cct gtc att	acc tgc tat gcc	gat gcc aag cct ggt ctg cag		1679
Lys Leu Pro Val Ile	Thr Cys Tyr Ala	Asp Ala Lys Pro Gly Leu Gln		
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aca cat ggc ttc atc	atc agg gtc aag	gac tat ggc tgc att gtg aag		1727
Thr His Gly Phe Ile	Ile Arg Val Lys	Asp Tyr Gly Cys Ile Val Lys		
559	564	569	574	

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Phe Tyr Asn Asn Val Gln Gly Leu Val Pro Lys His Glu Leu Ser Thr	
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Glu Tyr Ile Pro Asp Pro Glu Arg Val Phe Tyr Thr Gly Gln Val Val	
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Lys Val Val Val Leu Asn Cys Glu Pro Ser Lys Glu Arg Met Leu Leu	
607 612 617 622	
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Ser Phe Lys Leu Ser Ser Asp Pro Glu Pro Lys Lys Glu Pro Ala Gly	
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His Ser Gln Lys Lys Gly Lys Ala Ile Asn Ile Gly Gln Leu Val Asp	
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Val Lys Val Leu Glu Lys Thr Lys Asp Gly Leu Glu Val Ala Val Leu	
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ccc cac aac atc cgt gct ttc ctc ccc aca tct cat ctg tcg gac cac	2063
Pro His Asn Ile Arg Ala Phe Leu Pro Thr Ser His Leu Ser Asp His	
671 676 681 686	
gtt gcc aac ggc cca ttg tta cat cat tgg ctc cag gca ggt gac atc	2111
Val Ala Asn Gly Pro Leu Leu His His Trp Leu Gln Ala Gly Asp Ile	
687 692 697 702	
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Leu His Arg Val Leu Cys Leu Ser Gln Ser Glu Gly Arg Val Leu Leu	
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Cys Arg Lys Pro Ala Leu Val Ser Thr Val Glu Gly Gly Gln Asp Pro	
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735 740 745 750	
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Lys Ser Ile Lys Asp Tyr Gly Val Phe Ile Gln Phe Pro Ser Gly Leu	
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Ser Gly Leu Ala Pro Lys Ala Ile Met Ser Asp Lys Phe Val Thr Ser	
767 772 777 782	
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Thr Ser Asp His Phe Val Glu Gly Gln Thr Val Ala Ala Lys Val Thr	
783 788 793 798	

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Ser Gly Gly Pro Val Pro Asp Leu Val Leu Lys Ala Ser Arg Tyr His	
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Gly Thr Val Lys Ser Ile Lys Pro Thr His Val Val Thr Leu Glu	
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Leu Cys Leu Ser Leu Thr Gly Pro His Lys Leu Glu Glu Gly Glu Val	
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Ala Met Gly Arg Val Val Lys Val Thr Pro Asn Glu Gly Leu Thr Val	

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Ser Phe Pro Phe Gly Lys Ile Gly Thr Val Ser Ile Phe His Met Ser				
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Asp Ser Tyr Ser Glu Thr Pro Leu Glu Asp Phe Val Pro Gln Lys Val				
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gtc aga tgt tac atc ctg tcc act gca gac aac gta ttg act ttg tgc				3935
Val Arg Cys Tyr Ile Leu Ser Thr Ala Asp Asn Val Leu Thr Leu Ser				
1295	1300	1305	1310	
ctg cga tca tcc aga aca aac ccg gag acg aaa agc aaa gta gaa gat				3983
Leu Arg Ser Ser Arg Thr Asn Pro Glu Thr Lys Ser Lys Val Glu Asp				
1311	1316	1321	1326	
cca gag att aac tcc atc cag gac att aag gaa ggg cag ctt ctg agg				4031
Pro Glu Ile Asn Ser Ile Gln Asp Ile Lys Glu Gly Gln Leu Leu Arg				
1327	1332	1337	1342	
ggc tat gta ggg tcc atc cag cca cac ggt gtg ttc ttt cgc ctt ggc				4079
Gly Tyr Val Gly Ser Ile Gln Pro His Gly Val Phe Phe Arg Leu Gly				
1343	1348	1353	1358	
ccc tcc gtt gtg ggt ttg gct cgg tac tcc cat gtc tcc cag cac agc				4127
Pro Ser Val Val Gly Leu Ala Arg Tyr Ser His Val Ser Gln His Ser				
1359	1364	1369	1374	
ccg tcc aag aaa gcc ctt tat aac aaa cac ctc cct gaa ggg aag ctg				4175
Pro Ser Lys Lys Ala Leu Tyr Asn Lys His Leu Pro Glu Gly Lys Leu				
1375	1380	1385	1390	
ctc aca gcc agg gtc cta cgc ctt aac cac cag aag aac ctg gta gag				4223
Leu Thr Ala Arg Val Leu Arg Leu Asn His Gln Lys Asn Leu Val Glu				
1391	1396	1401	1406	
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Leu Ser Phe Leu Pro Gly Asp Thr Gly Lys Pro Asp Val Leu Ser Ala				
1407	1412	1417	1422	
tcc ttg gaa ggg caa ctt aca aag caa gag gag agg aaa aca gag gct				4319
Ser Leu Glu Gly Gln Leu Thr Lys Gln Glu Glu Arg Lys Thr Glu Ala				
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gag gag aga gac caa aaa ggg gaa aag aaa aat cag aaa agg aac gag				4367
Glu Glu Arg Asp Gln Lys Gly Glu Lys Lys Asn Gln Lys Arg Asn Glu				
1439	1444	1449	1454	
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Lys Lys Asn Gln Lys Gly Gln Glu Glu Val Glu Met Pro Ser Lys Glu				
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Lys Gln Gln Pro Gln Lys Pro Gln Ala Gln Lys Arg Gly Gly Arg Glu				
1471	1476	1481	1486	

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Cys Arg Glu Ser Gly Ser Glu Gln Glu Arg Val Ser Lys Lys Pro Lys	
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Lys Ala Gly Leu Ser Glu Glu Asp Asp Ser Leu Val Asp Val Tyr Tyr	
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cgg gag gga aaa gag gag gca gaa gag acg aat gtg ctg ccc aag gag	4607
Arg Glu Gly Lys Glu Glu Ala Glu Glu Thr Asn Val Leu Pro Lys Glu	
1519 1524 1529 1534	
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Lys Gln Thr Lys Pro Ala Glu Ala Pro Arg Leu Gln Leu Ser Ser Gly	
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ttc gct tgg aat gtg gga cta gac tct ctg acc ccg gcc ttg cca cct	4703
Phe Ala Trp Asn Val Gly Leu Asp Ser Leu Thr Pro Ala Leu Pro Pro	
1551 1556 1561 1566	
cta gca gag agc tca gac agc gag gag gat gag aag cca cac caa gcc	4751
Leu Ala Glu Ser Ser Asp Ser Glu Glu Asp Glu Lys Pro His Gln Ala	
1567 1572 1577 1582	
acg ata aag aaa agc aag aaa gaa agg gag ttg gag aag cag aag gca	4799
Thr Ile Lys Lys Ser Lys Lys Glu Arg Glu Leu Glu Lys Gln Lys Ala	
1583 1588 1593 1598	
gag aag gaa ctg tcc cgc att gag gag gcg ctg atg gat cct ggg cgg	4847
Glu Lys Glu Leu Ser Arg Ile Glu Glu Ala Leu Met Asp Pro Gly Arg	
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Gln Pro Glu Ser Ala Asp Phe Asp Arg Leu Val Leu Ser Ser Pro	
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Asn Ser Ser Ile Leu Trp Leu Gln Tyr Met Ala Phe His Leu Gln Ala	
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Thr Glu Ile Glu Lys Ala Arg Ala Val Ala Glu Arg Ala Leu Lys Thr	
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Ile Ser Phe Arg Glu Glu Gln Glu Lys Leu Asn Val Trp Val Ala Leu	
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ctg aac ctg gag aac atg tac ggc tct cag gag tcc ctg acc aag gtc	5087
Leu Asn Leu Glu Asn Met Tyr Gly Ser Gln Glu Ser Leu Thr Lys Val	
1679 1684 1689 1694	
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Phe Glu Arg Ala Val Gln Tyr Asn Glu Pro Leu Lys Val Phe Leu His	
1695 1700 1705 1710	

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Leu Ala Asp Ile Tyr Ala Lys Ser Glu Lys Phe Gln Glu Ala Gly Glu	
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ctc tac aac cgg atg ctg aag cgt ttc cgg cag gag aaa gct gtg tgg	5231
Leu Tyr Asn Arg Met Leu Lys Arg Phe Arg Gln Glu Lys Ala Val Trp	
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Ile Lys Tyr Gly Ala Phe Leu Leu Arg Arg Ser Gln Ala Ala Ala Ser	
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His Arg Val Leu Gln Arg Ala Leu Glu Cys Leu Pro Ser Lys Glu His	
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Val Asp Val Ile Ala Lys Phe Ala Gln Leu Glu Phe Gln Leu Gly Asp	
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Ala Glu Arg Ala Lys Ala Ile Phe Glu Asn Thr Leu Ser Thr Tyr Pro	
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Lys Arg Thr Asp Val Trp Ser Val Tyr Ile Asp Met Thr Ile Lys His	
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Ser Leu Ala Pro Lys Arg Met Lys Phe Phe Phe Lys Arg Tyr Leu Asp	
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Tyr Glu Lys Gln His Gly Thr Glu Lys Asp Val Gln Ala Val Lys Ala	
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Lys Ala Leu Glu Tyr Val Glu Ala Lys Ser Ser Val Leu Glu Asp *	
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Met Asp Asp Ala Thr	
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Val Leu Arg Lys Lys Gly Tyr Ile Val Gly Ile Asn Leu Gly Lys Gly	
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Ser Tyr Ala Lys Val Lys Ser Ala Tyr Ser Glu Arg Leu Lys Phe Asn	
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Glu Arg Phe Leu Pro Arg Glu Met Asp Ile Leu Ala Thr Val Asn His	
54 59 64 69	
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Gly Ser Ile Ile Lys Thr Tyr Glu Ile Phe Glu Thr Ser Asp Gly Arg	
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Ile Tyr Ile Ile Met Glu Leu Gly Val Gln Gly Asp Leu Leu Glu Phe	
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Ile Lys Cys Gln Gly Ala Leu His Glu Asp Val Ala Arg Lys Met Phe	
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Arg Gln Leu Ser Ser Ala Val Lys Tyr Cys His Asp Leu Asp Ile Val	
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His Arg Asp Leu Lys Cys Glu Asn Leu Leu Asp Lys Asp Phe Asn	
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Ile Lys Leu Ser Asp Phe Gly Phe Ser Lys Arg Cys Leu Arg Asp Ser	
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Asn Gly Arg Ile Ile Leu Ser Lys Thr Phe Cys Gly Ser Ala Ala Tyr	
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Ala Ala Pro Glu Val Leu Gln Ser Ile Pro Tyr Gln Pro Lys Val Tyr	
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Asp Ile Trp Ser Leu Gly Val Ile Leu Tyr Ile Met Val Cys Gly Ser	
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Met Pro Tyr Asp Asp Ser Asp Ile Arg Lys Met Leu Arg Ile Gln Lys	
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Glu His Arg Val Asp Phe Pro Arg Ser Lys Asn Leu Thr Cys Glu Cys	
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Lys Asp Leu Ile Tyr Arg Met Leu Gln Pro Asp Val Ser Gln Arg Leu	
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His Ile Asp Glu Ile Leu Ser His Ser Trp Leu Gln Pro Pro Lys Pro	
262 267 272 277	
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Lys Ala Thr Ser Ser Ala Ser Phe Lys Arg Glu Gly Glu Gly Lys Tyr	
278 283 288 293	
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Arg Ala Glu Cys Lys Leu Asp Thr Lys Thr Gly Leu Arg Pro Asp His	
294 299 304 309	
cgg ccc gac cac aag ctt gga gcc aaa acc cag cac cgg ctg ctg gtg	2095
Arg Pro Asp His Lys Leu Gly Ala Lys Thr Gln His Arg Leu Leu Val	
310 315 320 325	
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Val Pro Glu Asn Glu Asn Arg Met Glu Asp Arg Leu Ala Glu Thr Ser	
326 331 336 341	
agg gcc aaa gac cat cac atc tcc gga gct gag gtg ggg aaa gca agc	2191
Arg Ala Lys Asp His His Ile Ser Gly Ala Glu Val Gly Lys Ala Ser	
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Thr *	
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Met Val Thr Trp Lys Ala Asp Gly Thr Leu Ile Thr Gln  
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Ser Val Glu Lys Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Val	
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Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Arg Ser Arg Arg	
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Ser Tyr Ser Cys Gln Val Met Gln Glu Gly Ser Thr Val Glu Lys Ser	
46 51 56 61	
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Val Ala Pro Ala Glu Cys Ser *	
62 67	
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Cys Val Pro Asn Ile Leu Val Ile Ala Thr Glu Ser Gly Met Leu Tyr	
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His Cys Val Val Leu Glu Gly Glu Glu Glu Asp Asp His Thr Ser Glu	
37 42 47 52	
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165 170 175 180	
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Thr Met Ile Cys Ile Thr Ser Thr Tyr Glu Cys Leu Ile Trp Pro Leu	

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Leu Ser Thr Val His	Pro Ala Ser Pro Pro	Leu Leu Cys Thr Arg	Glu	
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Asp Val Glu Val Ala	Glu Ser Pro Leu Arg	Val Leu Ala Glu Thr Pro		
213	218	223	228	
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Asp Ser Phe Glu Lys His	Ile Arg Ser Ile Leu	Gln Arg Ser Val Ala		
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Asn Pro Ala Phe Leu Lys	Ala Ser Glu Lys Asp	Ile Ala Pro Pro Pro		
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Glu Glu Cys Leu Gln Leu	Leu Ser Arg Ala Thr	Gln Val Phe Arg Glu		
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Gln Tyr Ile Leu Lys Gln	Asp Leu Ala Lys Glu	Glu Ile Gln Arg Arg		
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Val Lys Leu Leu Cys Asp	Gln Lys Lys Lys Gln	Leu Glu Asp Leu Ser		
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Tyr Cys Arg Glu Glu Arg	Lys Ser Leu Arg Glu	Met Ala Glu Arg Leu		
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Ala Asp Lys Tyr Glu Glu	Ala Lys Glu Lys Gln	Glu Asp Ile Met Asn		
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Arg Met Lys Lys Leu Leu	His Ser Phe His Ser	Glu Leu Pro Val Leu		
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Asp Tyr Gln Gln Gln Lys	Met Glu Lys Val Leu	Ser Leu Pro Lys Pro		
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Arg Gly Pro Ser Gly Gly Gly Glu Glu Pro Ala Leu Ser Gln Tyr Gln  
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Arg Leu Leu Cys Ile Asn Pro Pro Leu Phe Glu Ile Tyr Gln Val Leu  
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Pro Ser Glu Ile Leu Asp Pro His Val Val Leu Leu Thr Ser Asp Asn	
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Lys Ile Lys Asn Leu Phe Met Trp Val Gln Pro Glu Ile Thr Gln Lys	
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Ser Leu Thr Phe Leu Tyr Thr Leu Leu Arg Glu Val Ile His Pro Leu  
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Ala Thr Ser His Gln Gln Tyr Phe Tyr Lys Ile Pro Ile Leu Val Ile  
99 104 109 114

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Asn Lys Val Leu Pro Met Val Ser Ile Thr Leu Leu Ala Leu Val Tyr	
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Gln Phe Gly Leu Leu Ser Phe Phe Phe Ala Val Leu His Ala Ile Tyr	
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Ser Leu Ser Tyr Pro Met Arg Arg Ser Tyr Arg Tyr Lys Leu Leu Asn	
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Trp Ala Tyr Gln Gln Val Gln Gln Asn Lys Glu Asp Ala Trp Ile Glu	
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His Asp Val Trp Arg Met Glu Ile Tyr Val Ser Leu Gly Ile Val Gly	
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Asn Lys Trp Ile Asp Ile Lys Gln Phe Val Trp Tyr Thr Pro Pro Thr	
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Phe Met Ile Ala Val Phe Leu Pro Ile Val Val Leu Ile Phe Lys Ser	
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Phe Tyr Gln His Leu Leu Leu Tyr Ile Gln Ser His Tyr Gln Leu Glu  
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Cys Lys Lys Pro Val Ser Ala Ser Gly Lys Glu Met Asp Trp Ala Gln  
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Cys	Lys	Asp	Ile	Lys	Arg	Leu	Leu	Val	Asn	Phe	Met	Tyr	Leu	Gln	Ser		
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Ser	Ser	Pro	Asn	Leu	Ser	Leu	Ala	Ser	Glu	Asp	Glu	Glu	Glu	Tyr	Glu		
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Tyr	Ser	Ala	Ala	Ile	Ala	Phe	Thr	Leu	Ala	Leu	Phe	Ser	His	Leu	Val		
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Asn	His	Val	Asn	Ile	Arg	Leu	Gln	Ala	Glu	Leu	Glu	Glu	Gly	Glu	Asn		

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Ala Ser Glu Gly Ser	Asp Ser Gly Ser Asp	Lys Ser Leu Glu Gly	Gly	
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Ala Met Ser Thr Gln	Met Phe Gln Thr Lys	Arg Cys Phe Arg Leu	Ala	
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ccc acc ttt agc aac	ctg ctc ctc cag ccc	acc acc aac cct cat	acc	1939
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Ser Ala Ser His Arg	Pro Cys Val Asn Gly	Asp Val Asp Lys Pro	Ser	
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Ser Glu Glu Gly Leu	Leu Ser Thr Gly Arg	Arg Leu Asp Arg Glu Gln		
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Leu Cys Arg Gln Trp	Asp Pro Cys Leu Val	Ser Phe Asp Val Leu Ala		
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Thr Gly Asp Leu Ala	Leu Ile His Val Glu	Ile Gln Val Leu Asp Ile		
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Asn Asp His Gln Pro	Arg Phe Pro Lys Gly	Glu Gln Glu Leu Glu Ile		
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Ser Glu Ser Ala Ser	Leu Arg Thr Arg Ile	Pro Leu Asp Arg Ala Leu		
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Asp Pro Asp Thr Gly	Pro Asn Thr Leu His	Thr Tyr Thr Leu Ser Pro		
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Ser Glu His Phe Ala	Leu Asp Val Ile Val	Gly Pro Asp Glu Thr Lys		
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cat gca gaa ctc ata	gtg gtg aag gag ctg	gac agg gaa atc cat tca		1333
His Ala Glu Leu Ile	Val Val Lys Glu Leu	Asp Arg Glu Ile His Ser		
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Phe Phe Asp Leu Val	Leu Thr Ala Tyr Asp	Asn Gly Asn Pro Pro Lys		
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tca ggt acc agc ttg	gtc aag gtc aac gtc	ttg gac tcc aat gac aat		1429
Ser Gly Thr Ser Leu	Val Lys Val Asn Val	Leu Asp Ser Asn Asp Asn		
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Ser Pro Ala Phe Ala	Glu Ser Ser Leu Ala	Leu Glu Ile Gln Glu Asp		
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Ala Ala Pro Gly Thr	Leu Leu Ile Lys Leu	Thr Ala Thr Asp Pro Asp		
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caa ggc ccc aat ggg	gag gtg gag ttc ttc	ctc agt aag cac atg cct		1573
Gln Gly Pro Asn Gly	Glu Val Glu Phe Phe	Leu Ser Lys His Met Pro		
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Pro Glu Val Leu Asp	Thr Phe Ser Ile Asp	Ala Lys Thr Gly Gln Val		
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Lys Val Leu Ile Lys Val Leu Asp Val Asn Asp Asn Ile Pro Ser Ile	
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Gln Asp Gln Gly Leu Gln Pro Leu Ser Ala Lys Lys Gln Leu Ser Ile	
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Gln Ile Ser Asp Ile Asn Asp Asn Ala Pro Val Phe Glu Lys Ser Arg	
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Asp Ala Asp Ser Gly Ala Asn Gly Glu Pro Leu Tyr Ser Ile Arg Ser	
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Gly Asn Glu Ala His Leu Phe Ile Leu Asn Pro His Thr Gly Gln Leu	
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Gln Thr Asp Pro Glu Gln Glu Glu Gly	Pro Leu Asp Pro Glu Glu Asp			
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Leu Ser Val Lys Gln Leu Leu Glu Glu Glu Leu	Ser Ser Leu Leu Asp			
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Pro Ser Thr Gly Leu Ala Leu Asp Arg Leu Ser	Ala Pro Asp Pro Ala			
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Trp Met Ala Arg Leu Ser Leu Pro Leu Thr Thr	Asn Tyr Arg Asp Asn			
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Val Ile Ser Pro Asp Ala Ala Ala Thr Glu Glu	Pro Arg Thr Phe Gln			
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Lys Ile Pro Phe Ala Asp Ala Leu Asp Leu Phe Arg Gly Arg Lys Val	
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Met Ala Val Gly Leu Cys Lys Ala  
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Gln Glu Glu Trp Glu Trp Leu Lys Pro Ser Gln Lys Asp Leu Tyr Arg	
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Trp Met Val Glu Arg Lys Met Ser Gln Gly His Cys Ala Asp Trp Glu	
73 78 83 88	
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Ser Trp Cys Glu Ile Glu Glu Leu Ser Pro Lys Trp Phe Ile Asp Glu	
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Asp Glu Ile Ser Gln Glu Met Val Met Glu Arg Leu Ala Ser His Gly	
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Val Lys Glu Ile Ser Thr Gly Lys Arg Asp Asn Glu Phe Ser Asn Ser	
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Pro Thr Ile Gln Gln Val His Lys Phe Asp Ile Tyr Asp Lys Leu Phe	
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Pro Gln Asn Ser Val Ile Ile Glu Tyr Lys Arg Leu His Ala Glu Lys	
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Gln Thr Thr His Phe Gly Lys Leu Pro His Gly Tyr Asp Glu Cys Gly	
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Asp Ala Phe Ser Cys Tyr Ser Phe Phe Thr Gln Pro Gln Arg Ile His	
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Ser Gly Glu Lys Pro Tyr Ala Cys Asn Asp Cys Gly Lys Ala Phe Ser	
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Pro Tyr Glu Cys Lys Glu Cys Asn Lys Ala Phe Arg Gln Ser Ala His	
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Asn Glu Cys Gly Lys Ala Phe Ser Arg Tyr Ala Phe Leu Val Glu His	
361 366 371 376	
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Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Glu Cys Asn	
377 382 387 392	
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Lys Ala Phe Arg Gln Ser Ala His Leu Asn Gln His Gln Arg Ile His	
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Thr Gly Glu Lys Pro Tyr Glu Cys Asn Gln Cys Gly Lys Ala Phe Ser	
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Pro Phe Lys Cys Ser Glu Cys Gly Lys Thr Phe Gly Tyr Arg Ser His	
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Ile	Lys	Cys	Gly	Lys	Phe	Phe	Arg	Thr	Asp	Ser	Gln	Leu	Asn	Arg	His	
473					478					483					488	
cat	aga	att	cac	act	gga	gag	aga	cca	ttt	gaa	tgc	agt	aaa	tgt	ggg	1721
His	Arg	Ile	His	Thr	Gly	Glu	Arg	Pro	Phe	Glu	Cys	Ser	Lys	Cys	Gly	
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Cys	Gly	Ser	Tyr	Leu	Asn	Gln	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys	
537					542					547					552	
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Pro	Tyr	Glu	Cys	Ser	Glu	Cys	Gly	Lys	Ala	Phe	His	Gln	Ile	Leu	Ser	
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aac	gaa	tca	caa	aga	gtc	cgg	cgc	tca	gag	cta	gcg	gtt	tcc	cga	gga	2009
Asn	Glu	Ser	Gln	Arg	Val	Arg	Arg	Ser	Glu	Leu	Ala	Val	Ser	Arg	Gly	
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Leu	Thr	Thr	Lys	Pro	Ala	Asp	Thr	Gly	Pro	Asp	Ser	Thr	Leu	Asn	Ala	
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gcc	aaa	gtg	gca	gag	ccg	gcg	cgg	gct	ggg	aca	gag	gcg	gca	ctg	agg	2105
Ala	Lys	Val	Ala	Glu	Pro	Ala	Arg	Ala	Gly	Thr	Glu	Ala	Ala	Leu	Arg	
617					622					627					632	
ccg	gcg	ctg	tcg	gtg	gct	gag	agc	gcc	aca	agt	ctc	ggt	ccg	tta	cac	2153
Pro	Ala	Leu	Ser	Val	Ala	Glu	Ser	Ala	Thr	Ser	Leu	Gly	Pro	Leu	His	
633					638					643					648	
cag	ggg	cga	cgc	ttc	cca	gag	gcc	ccc	gcg	gct	cac	ccg	ggc	ggg	act	2201
Gln	Gly	Arg	Arg	Phe	Pro	Glu	Ala	Pro	Ala	Ala	His	Pro	Gly	Gly	Thr	
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Gly	Phe	Thr	Val	Cys	Ala	Ser	*									
665					670											
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92 97 102 107

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Tyr Ser Tyr Asp Ser Ser Glu Val Ser Leu Gln Thr Gly Leu Gly Pro	
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Asp Gly Gln Gly His Gln Glu Ile His Ile His Glu Gly Thr Phe Ile	
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Glu Thr Ser Leu Ser Val Pro Ile Ile Ile Lys Tyr Leu Met Phe Thr	
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Lys Pro Glu Arg Asp Leu Met Pro Glu Pro Pro His Cys Ser Ser Pro	
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Pro	Ser	Asp	Phe	Leu	Phe	Pro	Lys	Pro	Asn	Arg	Phe	Gln	Pro	Glu	Leu	
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Ser	Ala	Pro	Asp	Leu	Arg	Arg	Phe	Ile	Asp	Gly	Pro	Asn	Arg	Ala	Val	
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Ile	Ile	Phe	Thr	Ser	Val	Gly	Thr	Leu	Val	Ile	Phe	Leu	Asp	Ala	Thr	
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cct cca gac agg aga ggg gca cgt acc ggc gct acg gct tcc tgc agg 751  
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ctg cct ccg gat agt ccc cga gag ctt gtt ccg aag caa gca ccc tgc 799  
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37 42 47 52

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53 58 63 68

ccc cct gct gtg gtt ccc gaa ccc caa ggc ccg atg ggt ccc gcg ggg 895  
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69 74 79 84

gtc gcg gcg agg cca ggg cgc ttt ttc ggc gtc tac ctg ctc tac tgc 943  
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85 90 95 100

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117 122 127 132

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His Gly Phe Pro Ser Ser Val Ala Ala Leu Arg Phe Glu Trp Ala Trp	
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Gln His Pro His Ala Ser Arg Arg Leu Ala His Val Gly Pro Arg Leu	
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Ser Glu Leu Glu Glu Ala His Trp Thr Asp Leu Leu Glu Thr *	
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Pro Lys Cys Gln Glu Leu Arg His Leu Cys Asp Gln Phe Ser Ala Glu	
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Ile Ala Arg Arg Arg Gly Leu Leu Ser Lys Ser Leu Glu Leu His Arg	
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762

767

772

777

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3280

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3328

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Thr Met Glu Ala Met Arg Ile Met Gly Ile Pro Glu Glu Glu Gln Met	
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ggc ctg ctg cgg gtc atc tca ggg gtt ctt cag ctc ggc aac atc gtc	1293
Gly Leu Leu Arg Val Ile Ser Gly Val Leu Gln Leu Gly Asn Ile Val	
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Phe Lys Lys Glu Arg Asn Thr Asp Gln Ala Ser Met Pro Asp Asn Thr	
354 359 364 369	
gct gcc caa aag gtg tcc cat ctc ttg ggt atc aat gtg acc gat ttc	1389
Ala Ala Gln Lys Val Ser His Leu Leu Gly Ile Asn Val Thr Asp Phe	
370 375 380 385	
acc aga gga atc ctc acc ccg cgc atc aag gtg gga cgg gat tac gtc	1437
Thr Arg Gly Ile Leu Thr Pro Arg Ile Lys Val Gly Arg Asp Tyr Val	
386 391 396 401	
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Gln Lys Ala Gln Thr Lys Glu Gln Ala Asp Phe Ala Ile Glu Ala Leu	
402 407 412 417	

gcc aag gcg acc tat gag cgg atg ttc cgc tgg ctg gtg ctg cgc atc	1533
Ala Lys Ala Thr Tyr Glu Arg Met Phe Arg Trp Leu Val Leu Arg Ile	
418 423 428 433	
aac aag gct ctg gac aag acc aag agg cag ggc gcc tcc ttc atc ggg	1581
Asn Lys Ala Leu Asp Lys Thr Lys Arg Gln Gly Ala Ser Phe Ile Gly	
434 439 444 449	
atc ctg gac att gcc ggc ttc gag atc ttt gat ctg aac tcg ttt gag	1629
Ile Leu Asp Ile Ala Gly Phe Glu Ile Phe Asp Leu Asn Ser Phe Glu	
450 455 460 465	
cag ctg tgc atc aat tac acc aat gag aag ctg cag cag ctc ttc aac	1677
Gln Leu Cys Ile Asn Tyr Thr Asn Glu Lys Leu Gln Gln Leu Phe Asn	
466 471 476 481	
cac acc atg ttc atc ctg gag cag gag gag tac cag cgc gag ggc atc	1725
His Thr Met Phe Ile Leu Glu Gln Glu Glu Tyr Gln Arg Glu Gly Ile	
482 487 492 497	
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Glu Trp Asn Phe Ile Asp Phe Gly Leu Asp Leu Gln Pro Cys Ile Asp	
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Leu Ile Glu Lys Pro Ala Gly Pro Pro Gly Ile Leu Ala Leu Leu Asp	
514 519 524 529	
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Glu Glu Cys Trp Phe Pro Lys Ala Thr Asp Lys Ser Phe Val Glu Lys	
530 535 540 545	
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Val Met Gln Glu Gln Gly Thr His Pro Lys Phe Gln Lys Pro Lys Gln	
546 551 556 561	
ctg aag gac aaa gct gat ttc tgc att atc cac tat gcc ggc aag gtg	1965
Leu Lys Asp Lys Ala Asp Phe Cys Ile Ile His Tyr Ala Gly Lys Val	
562 567 572 577	
gat tac aaa gct gac gag tgg ctg atg aag aac atg gat ccc ctg aat	2013
Asp Tyr Lys Ala Asp Glu Trp Leu Met Lys Asn Met Asp Pro Leu Asn	
578 583 588 593	
gac aac atc gcc aca ctg ctc cac cag tcc tct gac aag ttt gtc tcg	2061
Asp Asn Ile Ala Thr Leu Leu His Gln Ser Ser Asp Lys Phe Val Ser	
594 599 604 609	
gag ctg tgg aag gat gtg gac cgc atc atc ggc ctg gac cag gtg gcc	2109
Glu Leu Trp Lys Asp Val Asp Arg Ile Ile Gly Leu Asp Gln Val Ala	
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Gly Met Ser Glu Thr Ala Leu Pro Gly Ala Phe Lys Thr Arg Lys Gly	
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Met Phe Arg Thr Val Gly Gln Leu Tyr Lys Glu Gln Leu Ala Lys Leu	
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Met Ala Thr Leu Arg Asn Thr Asn Pro Asn Phe Val Arg Cys Ile Ile	
658 663 668 673	
ccc aac cac gag aag aag gcc ggc aag ctg gac ccg cat ctc gtg ctg	2301
Pro Asn His Glu Lys Lys Ala Gly Lys Leu Asp Pro His Leu Val Leu	
674 679 684 689	
gac cag ctg cgc tgc aac ggt gtt ctc gag ggc atc cgt atc tgc cgc	2349
Asp Gln Leu Arg Cys Asn Gly Val Leu Glu Gly Ile Arg Ile Cys Arg	
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cag ggc ttc ccc aac agg gtg gtc ttc cag gag ttt cgg cag aga tat	2397
Gln Gly Phe Pro Asn Arg Val Val Phe Gln Glu Phe Arg Gln Arg Tyr	
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gag atc ctg act cca aac tcc att ccc aag ggt ttc atg gac ggg aag	2445
Glu Ile Leu Thr Pro Asn Ser Ile Pro Lys Gly Phe Met Asp Gly Lys	
722 727 732 737	
cag gcg tgc gtg ctc atg ata aaa gcc ctg gag ctc gac agc aat ctg	2493
Gln Ala Cys Val Leu Met Ile Lys Ala Leu Glu Leu Asp Ser Asn Leu	
738 743 748 753	
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Tyr Arg Ile Gly Gln Ser Lys Val Phe Phe Arg Ala Gly Val Leu Ala	
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786 791 796 801	
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Arg Gln Gln Gln Leu Thr Ala Met Lys Val Leu Gln Arg Asn Cys Ala	
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gcc tac ctg aag ctg cgg aac tgg cag tgg tgg cgg ctc ttc acc aag	2733
Ala Tyr Leu Lys Leu Arg Asn Trp Gln Trp Trp Arg Leu Phe Thr Lys	
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gtc aag ccg ctg ctg cag gtg agc cgg cag gag gag gag atg atg gcc	2781
Val Lys Pro Leu Leu Gln Val Ser Arg Gln Glu Glu Glu Met Met Ala	
834 839 844 849	
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Lys Glu Glu Glu Leu Val Lys Val Arg Glu Lys Gln Leu Ala Ala Glu	
850 855 860 865	
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Asn Arg Leu Thr Glu Met Glu Thr Leu Gln Ser Gln Leu Met Ala Glu	

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Lys Leu Gln Leu Gln	Glu Gln Leu Gln Ala	Glu Thr Glu Leu Cys Ala		
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Glu Ala Glu Glu Leu	Arg Ala Arg Leu Thr	Ala Lys Lys Gln Glu Leu		
898	903	908	913	
gaa gag atc tgc cat	gac cta gag gcc agg	gtg gag gag gag gag		3021
Glu Glu Ile Cys His	Asp Leu Glu Ala Arg	Val Glu Glu Glu Glu Glu		
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cgc tgc cag cac ctg	cag gcg gag aag aag	aag atg cag cag aac atc		3069
Arg Cys Gln His Leu	Gln Ala Glu Lys Lys	Lys Met Gln Gln Asn Ile		
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Gln Glu Leu Glu Glu	Gln Leu Glu Glu Glu	Glu Ser Ala Arg Gln Lys		
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ctg cag ctg gag aag	gtg acc acc gag gcg	aag ctg aaa aag ctg gag		3165
Leu Gln Leu Glu Lys	Val Thr Thr Glu Ala	Lys Leu Lys Lys Leu Glu		
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Glu Glu Gln Ile Ile	Leu Glu Asp Gln Asn	Cys Lys Leu Ala Lys Glu		
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Lys Lys Leu Leu Glu	Asp Arg Ile Ala Glu	Phe Thr Thr Asn Leu Thr		
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gaa gag gag gag aaa	tct aag agc ctc gcc	aag ctc aag aac aag cat		3309
Glu Glu Glu Glu Lys	Ser Lys Ser Leu Ala	Lys Leu Lys Asn Lys His		
1010	1015	1020	1025	
gag gca atg atc act	gac ttg gaa gag cgc	ctc cgc agg gag gag aag		3357
Glu Ala Met Ile Thr	Asp Leu Glu Glu Arg	Leu Arg Arg Glu Glu Lys		
1026	1031	1036	1041	
cag cga cag gag ctg	gag aag acc cgc cgg	aag ctg gag gga gac tcc		3405
Gln Arg Gln Glu Leu	Glu Lys Thr Arg Arg	Lys Leu Glu Gly Asp Ser		
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aca gac ctc agc gac	cag atc gcc gag ctc	cag gcc cag atc gcg gag		3453
Thr Asp Leu Ser Asp	Gln Ile Ala Glu Leu	Gln Ala Gln Ile Ala Glu		
1058	1063	1068	1073	
ctc aag atg cag ctg	gcc aag aaa gag gag	gag ctc cag gcc gcc ctg		3501
Leu Lys Met Gln Leu	Ala Lys Lys Glu Glu	Glu Leu Gln Ala Ala Leu		
1074	1079	1084	1089	
gcc aga gtg gaa gag	gaa gct gcc cag aag	aac atg gcc ctc aag aag		3549
Ala Arg Val Glu Glu	Glu Ala Ala Gln Lys	Asn Met Ala Leu Lys Lys		
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Ile Arg Glu Leu Glu Ser Gln Ile Ser Glu Leu Gln Glu Asp Leu Glu	
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Ser Thr Ala Ala Gln Gln Glu Leu Arg Ser Lys Arg Glu Gln Glu Val	
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Cys Met Arg Glu Leu Asp Thr Arg Ala Ser Arg Glu Glu Ile Leu	
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23 28 33 38	
ggg gtg tgc ccc acc gct tgc atc tgt gcc act gac atc gtc agc tgc	376
Gly Val Cys Pro Thr Ala Cys Ile Cys Ala Thr Asp Ile Val Ser Cys	
39 44 49 54	
acc aac aaa aac ctg tcc aag gtg cct ggg aac ctt ttc aga ctg att	424
Thr Asn Lys Asn Leu Ser Lys Val Pro Gly Asn Leu Phe Arg Leu Ile	
55 60 65 70	
aag aga ctg gac ctg agt tat aac aga att ggg ctt ctg gat tct gag	472
Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile Gly Leu Leu Asp Ser Glu	
71 76 81 86	
tgg att cca gta tgc ttt gca aag ctg aac acc cta att ctt cgt cat	520
Trp Ile Pro Val Ser Phe Ala Lys Leu Asn Thr Leu Ile Leu Arg His	
87 92 97 102	
aac aac atc acc agc att tcc acg ggc agt ttt tcc aca act cca aat	568
Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser Phe Ser Thr Thr Pro Asn	
103 108 113 118	
ttg aag tgt ctt gac tta tgc tcc aat aag ctg aag acg gtg aaa aat	616
Leu Lys Cys Leu Asp Leu Ser Ser Asn Lys Leu Lys Thr Val Lys Asn	
119 124 129 134	
gct gta ttc caa gag ttg aag gtt ctg gaa gtg ctt ctg ctt tac aac	664
Ala Val Phe Gln Glu Leu Lys Val Leu Glu Val Leu Leu Leu Tyr Asn	
135 140 145 150	
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Asn His Ile Ser Tyr Leu Asp Pro Ser Ala Phe Gly Gly Leu Ser Gln	
151 156 161 166	
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Leu Gln Lys Leu Tyr Leu Ser Gly Asn Phe Leu Thr Gln Phe Pro Met	
167 172 177 182	
gat ttg tat gtt gga agg ttc aag ctg gca gaa ctg atg ttt tta gat	808
Asp Leu Tyr Val Gly Arg Phe Lys Leu Ala Glu Leu Met Phe Leu Asp	
183 188 193 198	
gtt tct tat aac cga att cct tcc atg cca atg cac cac ata aat tta	856
Val Ser Tyr Asn Arg Ile Pro Ser Met Pro Met His His Ile Asn Leu	
199 204 209 214	
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Val Pro Gly Lys Gln Leu Arg Gly Ile Tyr Leu His Gly Asn Pro Phe	
215 220 225 230	

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Val Cys Asp Cys Ser Leu Tyr Ser Leu Leu Val Phe Trp Tyr Arg Arg	
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His Phe Ser Ser Val Met Asp Phe Lys Asn Asp Tyr Thr Cys Arg Leu	
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Trp Ser Asp Ser Arg His Ser Arg Gln Val Leu Leu Leu Gln Asp Ser	
263 268 273 278	
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Phe Met Asn Cys Ser Asp Ser Ile Ile Asn Gly Ser Phe Arg Ala Leu	
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Gly Phe Ile His Glu Ala Gln Val Gly Glu Arg Leu Met Val His Cys	
295 300 305 310	
gac agc aag aca ggt aat gca aat acg gat ttc atc tgg gtg ggt cca	1192
Asp Ser Lys Thr Gly Asn Ala Asn Thr Asp Phe Ile Trp Val Gly Pro	
311 316 321 326	
gat aac aga ctg cta gag ccg gat aaa gag atg gaa aac ttt tac gtg	1240
Asp Asn Arg Leu Leu Glu Pro Asp Lys Glu Met Glu Asn Phe Tyr Val	
327 332 337 342	
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Phe His Asn Gly Ser Leu Val Ile Glu Ser Pro Arg Phe Glu Asp Ala	
343 348 353 358	
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Gly Val Tyr Ser Cys Ile Ala Met Asn Lys Gln Arg Leu Leu Asn Glu	
359 364 369 374	
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Thr Val Asp Val Thr Ile Asn Val Ser Asn Phe Thr Val Ser Arg Ser	
375 380 385 390	
cat gct cat gag gca ttt aac aca gct ttt acc act ctt gct gct tgc	1432
His Ala His Glu Ala Phe Asn Thr Ala Phe Thr Thr Leu Ala Ala Cys	
391 396 401 406	
gtg gcc agt atc gtt ttg gta ctt ttg tac ctc tat ctg act cca tgc	1480
Val Ala Ser Ile Val Leu Val Leu Leu Tyr Leu Tyr Leu Thr Pro Cys	
407 412 417 422	
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Pro Cys Lys Cys Lys Thr Lys Arg Gln Lys Asn Met Leu His Gln Ser	
423 428 433 438	
aat gcc cat tca tcg att ctc agt cct ggc ccc gct agt gat gcc tcc	1576
Asn Ala His Ser Ser Ile Leu Ser Pro Gly Pro Ala Ser Asp Ala Ser	
439 444 449 454	
gct gat gaa cgg aag gca ggt gca ggt aaa aga gtg gtg ttt ttg gaa	1624

Ala Asp Glu Arg Lys	Ala Gly Ala Gly Lys	Arg Val Val Phe Leu Glu	
455	460	465	470
ccc ctg aag gat act	gca gca ggg cag aac	ggg aaa gtc agg ctc ttt	1672
Pro Leu Lys Asp Thr	Ala Ala Gly Gln Asn	Gly Lys Val Arg Leu Phe	
471	476	481	486
ccc agc gag gca gtg	ata gct gag ggc atc	cta aag tcc acg agg ggg	1720
Pro Ser Glu Ala Val	Ile Ala Glu Gly Ile	Leu Lys Ser Thr Arg Gly	
487	492	497	502
aaa tct gac tca gat	tca gtc aat tca gtg	ttt tct gac aca cct ttt	1768
Lys Ser Asp Ser Asp	Ser Val Asn Ser Val	Phe Ser Asp Thr Pro Phe	
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gtg gcg tcc act taa	tttgtgccta tatttgtatg	atgtcataat ttaattctgtt	1823
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	Met Pro Glu
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gat gta cga gaa aaa aag	gaa aat ctt cta ctc aat tct gag aga tct
Asp Val Arg Glu Lys Lys	Glu Asn Leu Leu Asn Ser Glu Arg Ser
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act agg ctc tta aca aag	acc agt cat tca caa gga ggg gat caa gct
Thr Arg Leu Leu Thr Lys	Thr Ser His Ser Gln Gly Gly Asp Gln Ala
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tta agt aag tcc aca ggg	tca cca aca gag aag ttg att gaa aaa cgt
Leu Ser Lys Ser Thr Gly	Ser Pro Thr Glu Lys Leu Ile Glu Lys Arg
36	41 46 51
caa gga gct aag act gtt	ttt aac aag ttc agc aac atg aat tgg cca
Gln Gly Ala Lys Thr Val	Phe Asn Lys Phe Ser Asn Met Asn Trp Pro
52	57 62 67
gtg gac att cac cct tta	aac aaa agt tta gtc aaa gat aat aaa tgg
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Val	Asp	Ile	His	Pro	Leu	Asn	Lys	Ser	Leu	Val	Lys	Asp	Asn	Lys	Trp	
68					73					78					83	
aag	aaa	act	gag	gag	acc	caa	gag	aaa	cga	agg	tct	ttc	ctt	cag	gag	405
Lys	Lys	Thr	Glu	Glu	Thr	Gln	Glu	Lys	Arg	Arg	Ser	Phe	Leu	Gln	Glu	
84					89					94					99	
ttt	tgc	aag	aaa	tac	ggg	ggg	gtg	agt	cat	cat	cag	tca	cat	ctt	ttt	453
Phe	Cys	Lys	Lys	Tyr	Gly	Gly	Val	Ser	His	His	Gln	Ser	His	Leu	Phe	
100					105					110					115	
cat	aca	gta	tcc	aga	atc	tat	gta	gaa	gat	aaa	cac	aaa	atc	tta	tat	501
His	Thr	Val	Ser	Arg	Ile	Tyr	Val	Glu	Asp	Lys	His	Lys	Ile	Leu	Tyr	
116					121					126					131	
tgt	gag	gta	cct	aag	gct	ggc	tgt	tcc	aat	tgg	aaa	aga	att	ctg	atg	549
Cys	Glu	Val	Pro	Lys	Ala	Gly	Cys	Ser	Asn	Trp	Lys	Arg	Ile	Leu	Met	
132					137					142					147	
gta	cta	aat	gga	ttg	gct	tcc	tct	gca	tac	aac	atc	tcc	cac	aat	gct	597
Val	Leu	Asn	Gly	Leu	Ala	Ser	Ser	Ala	Tyr	Asn	Ile	Ser	His	Asn	Ala	
148					153					158					163	
gtc	cac	tac	ggg	aag	cat	ttg	aag	aag	cta	gat	agc	ttt	gac	cta	aaa	645
Val	His	Tyr	Gly	Lys	His	Leu	Lys	Lys	Leu	Asp	Ser	Phe	Asp	Leu	Lys	
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Gly	Ile	Tyr	Thr	Arg	Leu	Asn	Thr	Tyr	Thr	Lys	Ala	Val	Phe	Val	Arg	
180					185					190					195	
gat	ccc	atg	gaa	aga	tta	gta	tca	gcc	ttt	agg	gac	aaa	ttt	gaa	cac	741
Asp	Pro	Met	Glu	Arg	Leu	Val	Ser	Ala	Phe	Arg	Asp	Lys	Phe	Glu	His	
196					201					206					211	
ccc	aat	agt	tat	tac	cat	cca	gta	ttc	gga	aag	gca	att	atc	aag	aaa	789
Pro	Asn	Ser	Tyr	Tyr	His	Pro	Val	Phe	Gly	Lys	Ala	Ile	Ile	Lys	Lys	
212					217					222					227	
tat	cga	cca	aat	gcc	tgt	gaa	gaa	gca	tta	att	aat	gga	tct	gga	gtc	837
Tyr	Arg	Pro	Asn	Ala	Cys	Glu	Glu	Ala	Leu	Ile	Asn	Gly	Ser	Gly	Val	
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Lys	Phe	Lys	Glu	Phe	Ile	His	Tyr	Leu	Leu	Asp	Ser	His	Arg	Pro	Val	
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Leu	Ile	Asn	Tyr	Asp	Phe	Val	Gly	Lys	Phe	Glu	Thr	Leu	Glu	Glu	Asp	
276					281					286					291	
gcc	aat	tac	ttt	tta	cag	atg	atc	ggg	gct	cca	aag	gag	ctg	aaa	ttt	1029
Ala	Asn	Tyr	Phe	Leu	Gln	Met	Ile	Gly	Ala	Pro	Lys	Glu	Leu	Lys	Phe	

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Pro Asn Phe Lys Asp	Arg His Ser Ser Asp	Glu Arg Thr Asn Ala	Gln			
308	313	318	323			
gtc gtg aga cag tat	tta aag gat ctg act	aga act gag aga caa	tta	1125		
Val Val Arg Gln Tyr	Leu Lys Asp Leu Thr	Arg Thr Glu Arg Gln	Leu			
324	329	334	339			
atc tat gac ttt tat	tac ttg gac tat tta	atg ttt aat tat aca	act	1173		
Ile Tyr Asp Phe Tyr	Tyr Leu Asp Tyr Leu	Met Phe Asn Tyr Thr	Thr			
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cca ttt ttg tag ttt	gcattcattt tctaaaacc	tgtatatact taatgatgat		1228		
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47 52 57 62

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63 68 73 78

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Ala Asp Gly Pro Trp Thr Gln Arg Gly Glu Glu Glu Glu Ala Glu Ala	
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159 164 169 174	
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Asp Leu Glu Ala Ala Gln Arg Leu Ala Lys Arg Leu Tyr Arg Leu Asp	
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Phe Ser Lys Leu Val Ala Gly Glu Tyr Leu Lys Phe Phe Val Phe Thr	
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Gln Arg Tyr Phe Gln Cys Asn Pro Glu Ala Leu Ser Ser Glu Asp Gly	
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Ala His Thr Leu Thr Cys Ala Leu Met Leu Leu Asn Thr Asp Leu His	
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303 308 313 318	
gcc ttg tac agc tcc atc aag aat gag aag ctg cag tgg gcc ata gac	2808
Ala Leu Tyr Ser Ser Ile Lys Asn Glu Lys Leu Gln Trp Ala Ile Asp	
319 324 329 334	
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Ala Leu Val Arg Lys Val His Ala Asp Pro Asp Cys Arg Lys Thr Pro	
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Arg Gly Lys Arg Gly Trp Lys Ser Phe His Gly Ile Leu Lys Gly Met	
399 404 409 414	
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Ile Leu Tyr Leu Gln Lys Glu Glu Tyr Lys Pro Gly Lys Ala Leu Ser	
415 420 425 430	
gag acg gag ctc aag aat gcc atc agc atc cac cat gcc ctg gcc act	3144
Glu Thr Glu Leu Lys Asn Ala Ile Ser Ile His His Ala Leu Ala Thr	
431 436 441 446	
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Arg Ala Ser Asp Tyr Ser Lys Arg Pro His Val Phe Tyr Leu Arg Thr	
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Ala Asp Trp Arg Val Phe Leu Phe Gln Ala Pro Ser Leu Glu Gln Met	
463 468 473 478	
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Gln Ser Trp Ile Thr Arg Ile Asn Val Val Ala Ala Met Phe Ser Ala	
479 484 489 494	
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acc cac gag gcc aag ctg aag gcc atg gca agt gag ctg cgg gag cac	3432

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Gln	Arg	Gln	Lys	Glu	Ala	Tyr	Leu	Glu	Phe	Glu	Lys	Ser	Arg	Tyr	Ser	
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Thr	Tyr	Ala	Ala	Leu	Leu	Arg	Val	Lys	Leu	Lys	Ala	Gly	Ser	Glu	Glu	
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ctg	gat	gca	gtg	gag	gca	gca	ctg	gcc	cag	gcc	ggg	agc	aca	gag	gat	3624
Leu	Asp	Ala	Val	Glu	Ala	Ala	Leu	Ala	Gln	Ala	Gly	Ser	Thr	Glu	Asp	
591					596					601					606	
gga	ctc	cct	cct	tct	cac	tcc	agt	ccc	tcc	ctg	cag	ccc	aaa	ccc	tcc	3672
Gly	Leu	Pro	Pro	Ser	His	Ser	Ser	Pro	Ser	Leu	Gln	Pro	Lys	Pro	Ser	
607					612					617					622	
agc	cag	ccc	cgg	gct	cag	cgt	cac	agc	tca	gag	cct	cgg	cca	ggg	gca	3720
Ser	Gln	Pro	Arg	Ala	Gln	Arg	His	Ser	Ser	Glu	Pro	Arg	Pro	Gly	Ala	
623					628					633					638	
ggc	agt	ggg	cgg	cgg	aag	ccc	tga	gatgaggttt								3754
Gly	Ser	Gly	Arg	Arg	Lys	Pro	*									
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gtcccggggc	ccgggggtccc	gtctggcggc	ccgggattac	cgtgacgtca	cattgagcct	180
ctggccacct	tggactggga	cacctccgga	gcctcacagc	cccgcgccgc	gccgcgcctc	240
acctcgccac	cacgcgcctt	tgggaacccg	catcttcttc	cttcccctgc	ccatccatgg	300
gcccttctgt	cttccggacc	ccacggggccg	gaggggcgcc	ttccggagcg	cagggctcgg	360

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 gggcatccgc agcgggtgtaa ggaactgaga cacctcactg ctgggggagc ggaacagctg 480  
 ggctgagacg ggaactcgac agggaagaga gagacgggcc agggacagcc acc atg 536  
 Met  
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 Ser Phe Pro His Phe Gly His Pro Tyr Arg Gly Ala Ser Gln Phe Leu  
 2 7 12 17  
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 Ala Ser Ala Ser Ser Ser Thr Thr Cys Cys Glu Ser Thr Gln Arg Ser  
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 Val Ser Asp Val Ala Ser Gly Ser Thr Pro Ala Pro Ala Leu Cys Cys  
 34 39 44 49  
 gca ccc tac gat agt cga ctg ctg ggc agt gcg cga ccg gag ctg ggc 728  
 Ala Pro Tyr Asp Ser Arg Leu Leu Gly Ser Ala Arg Pro Glu Leu Gly  
 50 55 60 65  
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 Ala Ala Leu Gly Ile Tyr Gly Ala Pro Tyr Ala Ala Ala Ala Ala Ala  
 66 71 76 81  
 cag agc tac cct ggc tac ctg ccc tat agc cca gag ccc ccc tca ctg 824  
 Gln Ser Tyr Pro Gly Tyr Leu Pro Tyr Ser Pro Glu Pro Pro Ser Leu  
 82 87 92 97  
 tat ggg gca ctg aat cca cag tat gaa ttt aag gag gct gca ggg agt 872  
 Tyr Gly Ala Leu Asn Pro Gln Tyr Glu Phe Lys Glu Ala Ala Gly Ser  
 98 103 108 113  
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 Phe Thr Ser Ser Leu Ala Gln Pro Gly Ala Tyr Tyr Pro Tyr Glu Arg  
 114 119 124 129  
 act ctg ggg cag tac caa tat gaa cgg tat ggc gca gtg gaa ttg agt 968  
 Thr Leu Gly Gln Tyr Gln Tyr Glu Arg Tyr Gly Ala Val Glu Leu Ser  
 130 135 140 145  
 ggc gcc ggt cgc cga aag aac gcg acc cgg gag acc acc agt aca ctc 1016  
 Gly Ala Gly Arg Arg Lys Asn Ala Thr Arg Glu Thr Thr Ser Thr Leu  
 146 151 156 161  
 aag gcc tgg ctc aac gag cac cgc aaa aac ccc tac ccc act aag ggt 1064  
 Lys Ala Trp Leu Asn Glu His Arg Lys Asn Pro Tyr Pro Thr Lys Gly  
 162 167 172 177  
 gag aag atc atg ctg gcc atc atc acc aag atg acc ctc acc cag gtg 1112  
 Glu Lys Ile Met Leu Ala Ile Ile Thr Lys Met Thr Leu Thr Gln Val  
 178 183 188 193  
 tcc acc tgg ttc gcc aac gca cgc cgg cgc ctc aag aaa gag aac aaa 1160

Ser	Thr	Trp	Phe	Ala	Asn	Ala	Arg	Arg	Arg	Leu	Lys	Lys	Glu	Asn	Lys	
194					199					204					209	
atg	aca	tgg	gcg	ccc	aag	aac	aaa	ggt	ggg	gag	gag	agg	aag	gca	gag	1208
Met	Thr	Trp	Ala	Pro	Lys	Asn	Lys	Gly	Gly	Glu	Glu	Arg	Lys	Ala	Glu	
210					215					220					225	
gga	gga	gag	gag	gac	tca	cta	ggc	tgc	cta	act	gct	gac	acc	aaa	gaa	1256
Gly	Gly	Glu	Glu	Asp	Ser	Leu	Gly	Cys	Leu	Thr	Ala	Asp	Thr	Lys	Glu	
226					231					236					241	
gtt	act	gct	agc	cag	gag	gcc	cgg	ggg	ctc	cgg	ctg	agt	gac	ctg	gaa	1304
Val	Thr	Ala	Ser	Gln	Glu	Ala	Arg	Gly	Leu	Arg	Leu	Ser	Asp	Leu	Glu	
242					247					252					257	
gac	ctg	gag	gaa	gag	gag	gag	gag	gag	gag	gaa	gct	gaa	gac	gag	gag	1352
Asp	Leu	Glu	Glu	Glu	Glu	Glu	Glu	Glu	Glu	Glu	Ala	Glu	Asp	Glu	Glu	
258					263					268					273	
gta	gtg	gcc	aca	gct	ggg	gac	agg	ctg	acg	gag	ttc	cga	aag	ggc	gcg	1400
Val	Val	Ala	Thr	Ala	Gly	Asp	Arg	Leu	Thr	Glu	Phe	Arg	Lys	Gly	Ala	
274					279					284					289	
cag	tca	ctg	cct	ggg	ccg	tgc	gct	gca	gct	cga	gag	ggc	cga	ttg	gag	1448
Gln	Ser	Leu	Pro	Gly	Pro	Cys	Ala	Ala	Ala	Arg	Glu	Gly	Arg	Leu	Glu	
290					295					300					305	
cgc	agg	gag	tgc	ggc	ctg	gct	gcg	ccc	cgc	ttc	tcc	ttc	aat	gac	cct	1496
Arg	Arg	Glu	Cys	Gly	Leu	Ala	Ala	Pro	Arg	Phe	Ser	Phe	Asn	Asp	Pro	
306					311					316					321	
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Ser	Gly	Ser	Glu	Glu	Ala	Asp	Phe	Leu	Ser	Ala	Glu	Thr	Gly	Ser	Pro	
322					327					332					337	
agg	ttg	acc	atg	cac	tac	cca	tgc	ttg	gag	aaa	ccg	cgc	atc	tgg	tct	1592
Arg	Leu	Thr	Met	His	Tyr	Pro	Cys	Leu	Glu	Lys	Pro	Arg	Ile	Trp	Ser	
338					343					348					353	
ctg	gcg	cac	acc	gcg	aca	gcc	agc	gct	gtt	gaa	ggt	gca	ccc	cca	gcc	1640
Leu	Ala	His	Thr	Ala	Thr	Ala	Ser	Ala	Val	Glu	Gly	Ala	Pro	Pro	Ala	
354					359					364					369	
cgg	cct	agg	cca	cga	agt	cct	gag	tgc	cgt	atg	att	cct	gga	cag	cct	1688
Arg	Pro	Arg	Pro	Arg	Ser	Pro	Glu	Cys	Arg	Met	Ile	Pro	Gly	Gln	Pro	
370					375					380					385	
cct	gcc	tct	gcc	cgg	cga	ctc	tca	gtc	ccc	aga	gac	tcc	gcg	tgc	gac	1736
Pro	Ala	Ser	Ala	Arg	Arg	Leu	Ser	Val	Pro	Arg	Asp	Ser	Ala	Cys	Asp	
386					391					396					401	
gag	tct	tcc	tgc	ata	ccc	aaa	gcc	ttt	gga	aac	ccc	aag	ttt	gcc	ctg	1784
Glu	Ser	Ser	Cys	Ile	Pro	Lys	Ala	Phe	Gly	Asn	Pro	Lys	Phe	Ala	Leu	
402					407					412					417	
cag	gga	cta	ccg	ctg	aac	tgt	gcg	ccg	tgc	ccg	cgg	agg	agc	gag	cct	1832
Gln	Gly	Leu	Pro	Leu	Asn	Cys	Ala	Pro	Cys	Pro	Arg	Arg	Ser	Glu	Pro	

418	423	428	433	
gta gtg cag tgc cag	tac ccg tct gga gca	gaa ggt agt ggg ccc cca	1880	
Val Val Gln Cys Gln	Tyr Pro Ser Gly Ala	Glu Gly Ser Gly Pro Pro		
434	439	444	449	
gcg gcg ctg gga gta	tct atg caa aag aca	ccc acc tac cgc ccc gcc	1928	
Ala Ala Leu Gly Val	Ser Met Gln Lys Thr	Pro Thr Tyr Arg Pro Ala		
450	455	460	465	
cgg caa ttg cac acc	ctc tgc cat tcc agt	ctg ccc aga gga gac tcg	1976	
Arg Gln Leu His Thr	Leu Cys His Ser Ser	Leu Pro Arg Gly Asp Ser		
466	471	476	481	
ctg gtc cct gct gtg	ctg ctc aga gag ttt	act agg gtt ggg cag gca	2024	
Leu Val Pro Ala Val	Leu Leu Arg Glu Phe	Thr Arg Val Gly Gln Ala		
482	487	492	497	
cca ggg ctt tta gag	aag tct aag act gtg	ggc cag acg cac acc aca	2072	
Pro Gly Leu Leu Glu	Lys Ser Lys Thr Val	Gly Gln Thr His Thr Thr		
498	503	508	513	
gat tta agg gga ccc	tcc agt cgc cct cgc	tga cccgcggc ttagggctcg	2123	
Asp Leu Arg Gly Pro	Ser Ser Arg Pro Arg *			
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cctccggtac tgtgaggaaa ggacacgact ct atg gtg agg act gat gga cat	473
Met Val Arg Thr Asp Gly His	

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aca tta tct gag aaa aga aac tac cag gtg	aca aac agc atg ttt ggt	521	
Thr Leu Ser Glu Lys Arg Asn Tyr Gln Val	Thr Asn Ser Met Phe Gly		
8 13 18 23			
gct tca aga aag aag ttt gta gag ggg gtc	gac agt gac tac cat gac	569	
Ala Ser Arg Lys Lys Phe Val Glu Gly Val	Asp Ser Asp Tyr His Asp		
24 29 34 39			
gaa aac atg tac tac agc cag tct tct atg	ttt cca cat cgg tca gaa	617	
Glu Asn Met Tyr Tyr Ser Gln Ser Ser Met	Phe Pro His Arg Ser Glu		
40 45 50 55			
aaa gat atg ctg gca tca cca tct aca tca	ggg cag ctg tct cag ttt	665	
Lys Asp Met Leu Ala Ser Pro Ser Thr Ser	Gly Gln Leu Ser Gln Phe		
56 61 66 71			
ggg gca agt tta tac ggg caa caa agt gca	cta ggc ctt cca atg agg	713	
Gly Ala Ser Leu Tyr Gly Gln Gln Ser Ala	Leu Gly Leu Pro Met Arg		
72 77 82 87			
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Gly Met Ser Asn Asn Thr Pro Gln Leu Asn	Arg Ser Leu Ser Gln Gly		
88 93 98 103			
act cag tta ccg agc cac gtc acg cca aca	aca ggg gta cca aca atg	809	
Thr Gln Leu Pro Ser His Val Thr Pro Thr	Thr Gly Val Pro Thr Met		
104 109 114 119			
tca ctt cac acg cct cca tct cca agc agg	ggg att ttg cct atg aat	857	
Ser Leu His Thr Pro Pro Ser Pro Ser Arg	Gly Ile Leu Pro Met Asn		
120 125 130 135			
cct agg aat atg atg aac cac tcc cag gtt	ggg cag ggc att gga att	905	
Pro Arg Asn Met Met Asn His Ser Gln Val	Gly Gln Gly Ile Gly Ile		
136 141 146 151			
cct agc agg aca aat agc atg agc agt tca	ggg tta ggt agc ccc aac	953	
Pro Ser Arg Thr Asn Ser Met Ser Ser Ser	Gly Leu Gly Ser Pro Asn		
152 157 162 167			
aga agc tcg cca agc ata ata tgt atg cca	aag cag cag cct tct cga	1001	
Arg Ser Ser Pro Ser Ile Ile Cys Met Pro	Lys Gln Gln Pro Ser Arg		
168 173 178 183			
cag cct ttt act gtg aac agt atg tct gga	ttt gga atg aac agg aat	1049	
Gln Pro Phe Thr Val Asn Ser Met Ser Gly	Phe Gly Met Asn Arg Asn		
184 189 194 199			
cag gca ttt gga atg aat aac tcc tta tca	agt aac att ttt aat gga	1097	
Gln Ala Phe Gly Met Asn Asn Ser Leu Ser	Ser Asn Ile Phe Asn Gly		
200 205 210 215			
aca gac gga agt gaa aat gtg aca gga ttg	gac ctt tca gat ttc cca	1145	
Thr Asp Gly Ser Glu Asn Val Thr Gly Leu	Asp Leu Ser Asp Phe Pro		
216 221 226 231			

gca tta gca gac cga aac agg agg gaa gga agt ggt aac cca act cca	1193
Ala Leu Ala Asp Arg Asn Arg Arg Glu Gly Ser Gly Asn Pro Thr Pro	
232 237 242 247	
tta ata aac ccc ttg gct gga aga gct cct tat gtt gga atg gta aca	1241
Leu Ile Asn Pro Leu Ala Gly Arg Ala Pro Tyr Val Gly Met Val Thr	
248 253 258 263	
aaa cca gca aat gaa caa tcc cag gac ttc tca ata cac aat gaa gat	1289
Lys Pro Ala Asn Glu Gln Ser Gln Asp Phe Ser Ile His Asn Glu Asp	
264 269 274 279	
ttt cca gca tta cca ggc tcc agc tat aaa gat cca aca tca agt aat	1337
Phe Pro Ala Leu Pro Gly Ser Ser Tyr Lys Asp Pro Thr Ser Ser Asn	
280 285 290 295	
gat gac agt aaa tct aat ttg aat aca tct ggc aag aca act tca agt	1385
Asp Asp Ser Lys Ser Asn Leu Asn Thr Ser Gly Lys Thr Thr Ser Ser	
296 301 306 311	
aca gat gga ccc aaa ttc cct gga gat aaa agt tca aca aca caa aat	1433
Thr Asp Gly Pro Lys Phe Pro Gly Asp Lys Ser Ser Thr Thr Gln Asn	
312 317 322 327	
aat aac cag cag aaa aaa ggg atc cag gtg tta cct gat ggt cgg gtt	1481
Asn Asn Gln Gln Lys Lys Gly Ile Gln Val Leu Pro Asp Gly Arg Val	
328 333 338 343	
act aac att cct caa ggg atg gtg acg gac caa ttt gga atg att ggc	1529
Thr Asn Ile Pro Gln Gly Met Val Thr Asp Gln Phe Gly Met Ile Gly	
344 349 354 359	
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Leu Leu Thr Phe Ile Arg Ala Ala Glu Thr Asp Pro Gly Met Val His	
360 365 370 375	
ctt gca tta gga agt gac tta aca aca tta ggc ctc aat ctg aac tct	1625
Leu Ala Leu Gly Ser Asp Leu Thr Thr Leu Gly Leu Asn Leu Asn Ser	
376 381 386 391	
cct gaa aat ctc tac ccc aaa ttt gcg tca ccc tgg gca tct tca cct	1673
Pro Glu Asn Leu Tyr Pro Lys Phe Ala Ser Pro Trp Ala Ser Ser Pro	
392 397 402 407	
tgt cga cct caa gac ata gac ttc cat gtt cca tct gag tac tta acg	1721
Cys Arg Pro Gln Asp Ile Asp Phe His Val Pro Ser Glu Tyr Leu Thr	
408 413 418 423	
aac att cac att agg gat aag tta ttt ttc ttt ttc agc tgg ctg caa	1769
Asn Ile His Ile Arg Asp Lys Leu Phe Phe Phe Phe Ser Trp Leu Gln	
424 429 434 439	
taa aact tggccgatat ggtgaagacc ttctcttcta tctctattac atgaatggag	1826
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440	

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aagaagaacg agtatggatt accagggcac caggcatgga gccacaatg aaaaccaata 1946  
cctatgagag gggaacatat tacttctttg actgtcttaa ctggaggaaa gtagctaagg 2006  
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Met Ala Thr Ser Gln Tyr Phe Asp Phe Ala Gln Gly Gly Gly Pro  
1 5 10  
cag tac agc acc cag gct ccg acc ctt ccc ctg ccc act gtg ggg gcc 157  
Gln Tyr Ser Thr Gln Ala Pro Thr Leu Pro Leu Pro Thr Val Gly Ala  
16 21 26 31  
agc tat act gga caa ccc act cct ggg atg gac cct gcc gtg aac ccg 205  
Ser Tyr Thr Gly Gln Pro Thr Pro Gly Met Asp Pro Ala Val Asn Pro  
32 37 42 47  
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Ala Phe Pro Pro Ala Ala Pro Ala Gly Tyr Gly Gly Tyr Gln Pro His  
48 53 58 63  
tcc ggc cag gac ttc gcc tac ggc agc cga ccc cag gag ccc gtc ccc 301  
Ser Gly Gln Asp Phe Ala Tyr Gly Ser Arg Pro Gln Glu Pro Val Pro  
64 69 74 79  
acg gcc acc acc atg gct acc tac cag gac agt tac agc tac gga cag 349  
Thr Ala Thr Thr Met Ala Thr Tyr Gln Asp Ser Tyr Ser Tyr Gly Gln  
80 85 90 95  
tca gca gct gcc agg agc tat gag gac agg ccg tac ttc cag tct gct 397  
Ser Ala Ala Ala Arg Ser Tyr Glu Asp Arg Pro Tyr Phe Gln Ser Ala  
96 101 106 111  
gcc ctc cag tct ggg cgc atg aca gcc gca gac tcc ggc cag cca ggg 445  
Ala Leu Gln Ser Gly Arg Met Thr Ala Ala Asp Ser Gly Gln Pro Gly  
112 117 122 127

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Thr	Gln	Glu	Ala	Cys	Gly	Gln	Pro	Ser	Pro	His	Gly	Ser	His	Ser	His	
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Ala	Gln	Pro	Pro	Gln	Gln	Ala	Pro	Ile	Val	Glu	Ser	Gly	Gln	Pro	Ala	
144					149					154					159	
agc	acc	ttg	tcc	tcg	gga	tac	acc	tac	ccc	acg	gcg	aca	ggc	gtc	cag	589
Ser	Thr	Leu	Ser	Ser	Gly	Tyr	Thr	Tyr	Pro	Thr	Ala	Thr	Gly	Val	Gln	
160					165					170					175	
ccc	gag	tcg	tca	gct	tcc	atc	gtg	acc	tcc	tac	ccc	ccg	ccc	tcc	tac	637
Pro	Glu	Ser	Ser	Ala	Ser	Ile	Val	Thr	Ser	Tyr	Pro	Pro	Pro	Ser	Tyr	
176					181					186					191	
aac	ccc	acc	tgc	acc	gcc	tac	acg	gca	cca	agc	tac	ccg	aac	tat	gac	685
Asn	Pro	Thr	Cys	Thr	Ala	Tyr	Thr	Ala	Pro	Ser	Tyr	Pro	Asn	Tyr	Asp	
192					197					202					207	
gcg	tcg	gtg	tac	tcc	gct	gcc	agc	cct	ttc	tat	cct	cca	gcg	cag	ccc	733
Ala	Ser	Val	Tyr	Ser	Ala	Ala	Ser	Pro	Phe	Tyr	Pro	Pro	Ala	Gln	Pro	
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ccg	cct	ccc	ccg	gga	ccc	ccg	cag	cag	ctg	ccc	ccg	ccg	ccc	gcg	cct	781
Pro	Pro	Pro	Pro	Gly	Pro	Pro	Gln	Gln	Leu	Pro	Pro	Pro	Pro	Ala	Pro	
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gca	ggc	tca	gga	agc	agc	ccc	agg	gcc	gac	tcg	aag	cca	ccg	ctt	ccc	829
Ala	Gly	Ser	Gly	Ser	Ser	Pro	Arg	Ala	Asp	Ser	Lys	Pro	Pro	Leu	Pro	
240					245					250					255	
agc	aag	ctg	ccg	aga	ccc	aag	gcg	ggg	ccc	agg	cag	ctc	cag	ctt	cac	877
Ser	Lys	Leu	Pro	Arg	Pro	Lys	Ala	Gly	Pro	Arg	Gln	Leu	Gln	Leu	His	
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tac	tgc	gac	atc	tgc	aag	atc	agc	tgc	gct	ggc	ccc	cag	acc	tac	cgg	925
Tyr	Cys	Asp	Ile	Cys	Lys	Ile	Ser	Cys	Ala	Gly	Pro	Gln	Thr	Tyr	Arg	
272					277					282					287	
gaa	cat	ctg	gga	ggg	cag	aag	cac	aga	aag	aag	gag	gcg	gcc	cag	aag	973
Glu	His	Leu	Gly	Gly	Gln	Lys	His	Arg	Lys	Lys	Glu	Ala	Ala	Gln	Lys	
288					293					298					303	
aca	ggc	gtg	cag	ccc	aac	ggg	agc	ccg	cgc	ggg	gtg	cag	gcg	cag	ctg	1021
Thr	Gly	Val	Gln	Pro	Asn	Gly	Ser	Pro	Arg	Gly	Val	Gln	Ala	Gln	Leu	
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His	Cys	Asp	Leu	Cys	Ala	Val	Ser	Cys	Thr	Gly	Ala	Asp	Ala	Tyr	Ala	
320					325					330					335	
gcc	cac	atc	cgg	gga	tcc	aag	cac	cag	aag	gtc	ttc	aag	ctg	cac	gcc	1117
Ala	His	Ile	Arg	Gly	Ser	Lys	His	Gln	Lys	Val	Phe	Lys	Leu	His	Ala	
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aaa	ctg	ggg	aag	ccc	att	ccc	acc	ctc	gag	cct	gca	ctg	gcc	aca	gag	1165

Lys	Leu	Gly	Lys	Pro	Ile	Pro	Thr	Leu	Glu	Pro	Ala	Leu	Ala	Thr	Glu	
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Ser	Pro	Pro	Gly	Ala	Glu	Ala	Lys	Pro	Thr	Ser	Pro	Thr	Gly	Pro	Ser	
368					373					378					383	
gtg	tgt	gcc	tcg	agc	agg	cca	gcg	ctg	gcc	aag	aga	ccc	gtg	gcc	tcg	1261
Val	Cys	Ala	Ser	Ser	Arg	Pro	Ala	Leu	Ala	Lys	Arg	Pro	Val	Ala	Ser	
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Pro	Thr	Gln	Gly	Gly	Ser	Lys	Glu	Ala	Pro	Ala	Gly	Cys	Ser	Asp	Ala	
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cag	ccg	gtg	ggc	ccg	gaa	tat	gtg	gag	gag	gtg	ttc	agc	gac	gaa	ggg	1453
Gln	Pro	Val	Gly	Pro	Glu	Tyr	Val	Glu	Glu	Val	Phe	Ser	Asp	Glu	Gly	
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Arg	Arg	Leu	Glu	Glu	Glu	Pro	Pro	Gln	Asp	Val	Pro	Pro	His	Ala	Pro	
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Pro	Asp	Trp	Ala	Gln	Pro	Leu	Leu	Met	Gly	Arg	Pro	Glu	Ser	Pro	Ala	
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agc	gcc	cca	ctc	cag	ccc	ggg	cgg	cgg	ccg	gcg	tcc	agc	gac	gac	cgg	1837
Ser	Ala	Pro	Leu	Gln	Pro	Gly	Arg	Arg	Pro	Ala	Ser	Ser	Asp	Asp	Arg	

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Thr Glu Asp Glu Tyr	Glu Val Ser Ser Asp	Pro Glu Ala Asn Ile	Val	
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Ser Leu Ala Ala Leu	Arg His Ala Arg Trp	Phe Gln Ala Arg Ala	Ser	
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Gly Leu Gln Pro Cys	Val Ile Val Ile Arg	Val Leu Arg Asp Leu	Cys	
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Arg Arg Val Pro Thr	Trp Gly Ala Leu Pro	Ala Trp Ala Met Glu	Leu	
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Asp Gln Ala Gln Arg Arg Val Leu Arg Gly Val Asp Asp Leu Asp Phe		
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Phe Ile Gly Asp Glu Ala Ile Asp Lys Pro Thr Tyr Ala Thr Lys Trp		
61 66 71 76		
ccg ata cga cat gga atc att gaa gac tgg gat ctt atg gaa agg ttc	410	
Pro Ile Arg His Gly Ile Ile Glu Asp Trp Asp Leu Met Glu Arg Phe		
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Met Glu Gln Val Val Phe Lys Tyr Leu Arg Ala Glu Pro Glu Asp His		
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Tyr Phe Leu Met Thr Glu Pro Pro Leu Asn Thr Pro Glu Asn Arg Glu		
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Tyr Leu Ala Glu Ile Met Phe Glu Ser Phe Asn Val Pro Gly Leu Tyr		
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Ile Ala Val Gln Ala Val Leu Ala Leu Ala Ala Ser Trp Thr Ser Arg		
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Gln Val Gly Glu Arg Thr Leu Thr Gly Ile Val Ile Asp Ser Gly Asp		
157 162 167 172		
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Gly Val Thr His Val Ile Pro Val Ala Glu Gly Tyr Val Ile Gly Ser		
173 178 183 188		
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Cys Ile Lys His Ile Pro Ile Ala Gly Arg Asp Ile Thr Tyr Phe Ile		
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Gln Gln Leu Leu Arg Glu Arg Glu Val Gly Ile Pro Pro Glu Gln Ser		
205 210 215 220		
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Asp Ile Val Lys Glu	Phe Ala Lys Tyr Asp	Val Asp Pro Arg Lys	Trp	
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Ile Lys Gln Tyr Thr	Gly Ile Asn Ala Ile	Asn Gln Lys Lys Phe	Val	
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ata gac gtt ggt tac	gaa aga ttc ctg gga	cct gaa ata ttc ttt	cac	986
Ile Asp Val Gly Tyr	Glu Arg Phe Leu Gly	Pro Glu Ile Phe Phe	His	
269	274	279	284	
ccg gag ttt gcc aac	cca gac ttt atg gag	tcc atc tca gat gtt	gtt	1034
Pro Glu Phe Ala Asn	Pro Asp Phe Met Glu	Ser Ile Ser Asp Val	Val	
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gat gaa gta ata cag	aac tgc ccc atc gat	gtg cgg cgc ccg ctg	tat	1082
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Lys Asn Val Val Leu	Ser Gly Gly Ser Thr	Met Phe Arg Asp Phe	Gly	
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cgc cga ctg cag agg	gat ttg aag aga gtg	gtg gat gct agg ctg	agg	1178
Arg Arg Leu Gln Arg	Asp Leu Lys Arg Val	Val Asp Ala Arg Leu	Arg	
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Leu Ser Glu Glu Leu	Ser Gly Gly Arg Ile	Lys Pro Lys Pro Val	Glu	
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Val Gln Val Val Thr	His His Met Gln Arg	Tyr Ala Val Trp Phe	Gly	
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Gly Ser Met Leu Ala	Ser Thr Pro Glu Phe	Phe Gln Val Cys His	Thr	
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Lys Lys Asp Tyr Glu	Glu Tyr Gly Pro Ser	Ile Cys Arg His Asn	Pro	
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Val Phe Gly Val Met	Ser *			
413	418			
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 Arg Arg Leu Val Val Val Glu Ala Lys Met Ala Ala Gln Ala Ala Ala  
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 Ser Trp Tyr Leu Ala Leu Leu Gly Phe Ala Glu His Phe Arg Thr Ser  
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 Ser Pro Pro Lys Ile Arg Leu Cys Val His Cys Leu Gln Ala Val Phe  
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Gly Ser Val Leu Tyr His His Thr Lys Asn Ser Glu Gln Ala Arg Ser	
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His Leu Glu Lys Ala Trp Leu Ile Ser Gln Gln Ile Pro Gln Phe Glu	
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Asp Val Lys Phe Glu Ala Ala Ser Leu Leu Ser Glu Leu Tyr Cys Gln	
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Phe Leu Val Leu Gln Val Thr His Tyr Leu Asp Ala Gly Gln Val Lys	
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Pro Pro Arg Gly Gln Leu Gln Pro Ser Arg Pro Thr Arg Ala Arg Gly	
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Thr Cys Ser Val Glu Asp Pro Leu Leu Val Cys Gln Lys Glu Pro Gly	
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Lys Pro Arg Met Val Lys Ser Val Gly Ser Val Gly Asp Ser Pro Trp	
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Glu Pro Arg Arg Thr Val Ser Glu Ser Val Ile Ala Val Lys Ala Ser	
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Phe Pro Ser Ser Ala Leu Pro Pro Arg Thr Gly Val Ala Leu Gly Arg	
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Lys Leu Gly Ser His Ser Val Ala Ser Cys Ala Pro Gln Leu Leu Gly	
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Asp Arg Arg Val Asp Ala Gly His Thr Asp Gln Pro Val Pro Ser Gly	
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Ser Val Gly Gly Pro Ala Arg Pro Ala Ser Gly Pro Arg Gln Ala Arg	
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Glu Ala Ser Leu Val Val Thr Cys Arg Thr Asn Lys Phe Arg Lys Asn	
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Asn Tyr Lys Trp Val Ala Ala Ser Ser Lys Ser Pro Arg Val Ala Arg	
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Arg Ala Leu Ser Pro Arg Val Ala Ala Glu Asn Val Cys Lys Ala Ser	
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Ala Gly Met Ala Asn Lys Val Glu Lys Pro Gln Leu Ile Ala Asp Pro	
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Glu Pro Lys Pro Arg Lys Pro Ala Thr Ser Ser Lys Pro Gly Ser Ala	
409 414 419 424	
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Pro Ser Lys Tyr Lys Trp Lys Ala Ser Ser Pro Ser Ala Ser Ser Ser	
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Ser Ser Phe Arg Trp Gln Ser Glu Ala Gly Ser Lys Asp His Ala Ser	
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Gln Leu Ser Pro Val Leu Ser Arg Ser Pro Ser Gly Asp Arg Pro Ala	
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Ala Tyr Lys Val Lys Ser Arg Thr Lys Ile Ile Arg Arg Arg Gly Ser	
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Ser Ser Pro Val Leu Lys Lys Thr Pro Asn Lys Gly Leu Val Gln Val	
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553 558 563 568	
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Pro Leu Ser Ala Pro Pro Phe Pro Leu Ser Leu Pro Ser Trp Arg Ala	
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Val Ala Ser Gly Gly Gly Lys Ala Gln Pro Gly Ser Pro Trp Trp Arg	
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agc aaa ggc tac cgc tgc atc gga ggg gtc ctc tac aaa gta tct gcc	3640
Ser Lys Gly Tyr Arg Cys Ile Gly Gly Val Leu Tyr Lys Val Ser Ala	
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Asn Lys Leu Ser Lys Thr Ser Gly Gln Pro Ser Asp Ala Gly Ser Arg	
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Pro Leu Leu Arg Thr Gly Arg Leu Asp Pro Ala Gly Ser Cys Ser Arg	
681 686 691 696	
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Ser Leu Ala Ser Arg Ala Val Gln Arg Ser Leu Ala Ile Ile Arg Gln	
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gcg cgg cag cgc agg gag aag agg aag gag tac tgc atg tac tac aac	3832
Ala Arg Gln Arg Arg Glu Lys Arg Lys Glu Tyr Cys Met Tyr Tyr Asn	
713 718 723 728	
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Arg Phe Gly Arg Cys Asn Arg Gly Glu Arg Cys Pro Tyr Ile His Asp	
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Pro Glu Lys Val Ala Val Cys Thr Arg Phe Val Arg Gly Thr Cys Lys	
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Lys Thr Asp Gly Thr Cys Pro Phe Ser His His Val Ser Lys Glu Lys	
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Met Pro Val Cys Ser Tyr Phe Leu Lys Gly Ile Cys Ser Asn Ser Asn	
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Cys Pro Tyr Ser His Val Tyr Val Ser Arg Lys Ala Glu Val Cys Ser	

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Asp Phe Leu Lys Gly Tyr Cys Pro Leu Gly Ala Lys Cys Lys Lys Lys				
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cac acg ctg ctg tgc ccc gac ttt gcc cgc agg ggg gcg tgt ccc cgc				4168
His Thr Leu Leu Cys Pro Asp Phe Ala Arg Arg Gly Ala Cys Pro Arg				
825	830	835	840	
ggc gcc cag tgc cag ctg ctc cac cgt acc cag aaa cgc cac agt cgg				4216
Gly Ala Gln Cys Gln Leu Leu His Arg Thr Gln Lys Arg His Ser Arg				
841	846	851	856	
cgg gca gcc acg tcc ccc gcc cca ggg ccc agc gac gca acc gcc agg				4264
Arg Ala Ala Thr Ser Pro Ala Pro Gly Pro Ser Asp Ala Thr Ala Arg				
857	862	867	872	
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Ser Arg Val Ser Ala Ser His Gly Pro Arg Lys Pro Ser Ala Ser Gln				
873	878	883	888	
cgc ccc acc agg cag acg ccc agc tgc gct gcc ctc act gcg gct gcc				4360
Arg Pro Thr Arg Gln Thr Pro Ser Ser Ala Ala Leu Thr Ala Ala Ala				
889	894	899	904	
gtg gct gca cct ccc cac tgc cca ggg ggg tca gcc tct ccc tca tcc				4408
Val Ala Ala Pro Pro His Cys Pro Gly Gly Ser Ala Ser Pro Ser Ser				
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tcg aag gct tcc tcc tcc tcc tcc tcc tcc tca tcc cct ccc gct tcc				4456
Ser Lys Ala Ser Ser Ser Ser Ser Ser Ser Ser Ser Pro Pro Ala Ser				
921	926	931	936	
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Leu Asp His Glu Ala Pro Ser Leu Gln Glu Ala Ala Leu Ala Ala Ala				
937	942	947	952	
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Cys Ser Asn Arg Leu Cys Lys Leu Pro Ser Phe Ile Ser Leu Gln Ser				
953	958	963	968	
tcg ccg agc cca gga gcc cag ccc agg gtc cgg gcc cct agg gcc ccc				4600
Ser Pro Ser Pro Gly Ala Gln Pro Arg Val Arg Ala Pro Arg Ala Pro				
969	974	979	984	
ctc acc aag gac tca ggg aag cct ctg cac atc aaa cca cgt ctg tga				4648
Leu Thr Lys Asp Ser Gly Lys Pro Leu His Ile Lys Pro Arg Leu *				
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Met Glu Ser Thr Pro Ser Arg Gly Leu Asn  
1 5  
cga gta cac cta caa tgc agg aat ctg cag gaa ttc tta ggg ggc ctg 340  
Arg Val His Leu Gln Cys Arg Asn Leu Gln Glu Phe Leu Gly Gly Leu  
11 16 21 26  
agc cct ggg gta ttg gac cga ttg tat ggg cac cct gcc aca tgt ctg 388  
Ser Pro Gly Val Leu Asp Arg Leu Tyr Gly His Pro Ala Thr Cys Leu  
27 32 37 42  
gct gtc ttc agg gag ctg cca tcc ttg gct aag aac tgg gtg atg cgg 436  
Ala Val Phe Arg Glu Leu Pro Ser Leu Ala Lys Asn Trp Val Met Arg  
43 48 53 58  
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Met Leu Phe Leu Glu Gln Pro Leu Pro Gln Ala Ala Val Ala Leu Trp  
59 64 69 74  
gta aag aag gaa ttc agc aag gct cag gag gaa agt aca ggg ctg ctg 532  
Val Lys Lys Glu Phe Ser Lys Ala Gln Glu Glu Ser Thr Gly Leu Leu  
75 80 85 90  
agc ggc ctg cgg atc tgg cac aca cag ctg ctg cca ggc ggg ctg cag 580  
Ser Gly Leu Arg Ile Trp His Thr Gln Leu Leu Pro Gly Gly Leu Gln  
91 96 101 106  
ggc ctg atc ctg aac ccc att ttc cgc cag aac ctg cgc att gcc ctt 628

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107					112					117					122		
ctg	ggt	ggg	ggg	aag	gcc	tgg	tct	gat	gac	aca	agt	cag	ctg	gga	cca	676	
Leu	Gly	Gly	Gly	Lys	Ala	Trp	Ser	Asp	Asp	Thr	Ser	Gln	Leu	Gly	Pro		
123					128					133					138		
gac	aag	cat	gcc	cgg	gac	gtt	ccc	tcc	ctt	gac	aag	tac	gcc	gag	gag	724	
Asp	Lys	His	Ala	Arg	Asp	Val	Pro	Ser	Leu	Asp	Lys	Tyr	Ala	Glu	Glu		
139					144					149					154		
cga	tgg	gag	gtg	gtc	ttg	cac	ttc	atg	gtg	ggc	tcc	ccc	agt	gca	gct	772	
Arg	Trp	Glu	Val	Val	Leu	His	Phe	Met	Val	Gly	Ser	Pro	Ser	Ala	Ala		
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Val	Ser	Gln	Asp	Leu	Ala	Gln	Leu	Leu	Ser	Gln	Ala	Gly	Leu	Met	Lys		
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agt	act	gaa	cct	gga	gag	cgg	ccc	tgc	att	act	tcc	gct	ggc	ttc	cag	868	
Ser	Thr	Glu	Pro	Gly	Glu	Pro	Pro	Cys	Ile	Thr	Ser	Ala	Gly	Phe	Gln		
187					192					197					202		
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Phe	Leu	Leu	Leu	Asp	Thr	Pro	Ala	Gln	Leu	Trp	Tyr	Phe	Met	Leu	Gln		
203					208					213					218		
tat	ttg	cag	aca	gcc	cag	agc	cgg	ggc	atg	gac	ctg	gta	gag	att	ctc	964	
Tyr	Leu	Gln	Thr	Ala	Gln	Ser	Arg	Gly	Met	Asp	Leu	Val	Glu	Ile	Leu		
219					224					229					234		
tcc	ttc	ctc	ttc	cag	ctc	agc	ttc	tct	act	ctg	ggc	aag	gat	tac	tct	1012	
Ser	Phe	Leu	Phe	Gln	Leu	Ser	Phe	Ser	Thr	Leu	Gly	Lys	Asp	Tyr	Ser		
235					240					245					250		
gtg	gaa	ggt	atg	agt	gat	tct	ctg	ttg	aac	ttc	ctg	caa	cat	ctg	cgt	1060	
Val	Glu	Gly	Met	Ser	Asp	Ser	Leu	Leu	Asn	Phe	Leu	Gln	His	Leu	Arg		
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gag	ttt	ggg	ctt	gtt	ttc	cag	agg	aag	agg	aaa	tct	cgg	cgt	tac	tac	1108	
Glu	Phe	Gly	Leu	Val	Phe	Gln	Arg	Lys	Arg	Lys	Ser	Arg	Arg	Tyr	Tyr		
267					272					277					282		
ccc	aca	cgc	ctg	gcc	atc	aat	ctc	tca	tca	ggt	gtc	tct	gga	gct	ggg	1156	
Pro	Thr	Arg	Leu	Ala	Ile	Asn	Leu	Ser	Ser	Gly	Val	Ser	Gly	Ala	Gly		
283					288					293					298		
ggc	act	gtg	cat	cag	cca	ggt	ttc	att	gtc	gtg	gaa	acc	aat	tac	cga	1204	
Gly	Thr	Val	His	Gln	Pro	Gly	Phe	Ile	Val	Val	Glu	Thr	Asn	Tyr	Arg		
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ctg	tat	gcc	tac	acg	gag	tcg	gag	ctg	cag	att	gcc	ctc	att	gcc	ctc	1252	
Leu	Tyr	Ala	Tyr	Thr	Glu	Ser	Glu	Leu	Gln	Ile	Ala	Leu	Ile	Ala	Leu		
315					320					325					330		
ttc	tct	gag	atg	ctc	tat	cgg	ttc	ccc	aac	atg	gtg	gtg	gcg	cag	gtg	1300	
Phe	Ser	Glu	Met	Leu	Tyr	Arg	Phe	Pro	Asn	Met	Val	Val	Ala	Gln	Val		

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Thr Arg Glu Ser Val	Gln Gln Ala Ile Ala	Ser Gly Ile Thr Ala	Gln	
347	352	357	362	
cag ata atc cat ttc	cta agg aca aga gcc	cac cca gtg atg ctc	aaa	1396
Gln Ile Ile His Phe	Leu Arg Thr Arg Ala	His Pro Val Met Leu	Lys	
363	368	373	378	
cag aca cct gtg ctg	ccc ccc acc atc acc	gac cag atc cgg ctc	tgg	1444
Gln Thr Pro Val Leu	Pro Pro Thr Ile Thr	Asp Gln Ile Arg Leu	Trp	
379	384	389	394	
gag ctg gaa agg gac	aga ctc cgg ttc act	gag ggt gtc ctg tat	aac	1492
Glu Leu Glu Arg Asp	Arg Leu Arg Phe Thr	Glu Gly Val Leu Tyr	Asn	
395	400	405	410	
cag ttc ctg tcg caa	gtg gac ttt gag ctg	ctg ctg gcc cac gcg	cgg	1540
Gln Phe Leu Ser Gln	Val Asp Phe Glu Leu	Leu Leu Ala His Ala	Arg	
411	416	421	426	
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Glu Leu Gly Val Leu	Val Phe Glu Asn Ser	Ala Lys Arg Leu Met	Val	
427	432	437	442	
gtg acc ccg gcc ggg	cac agc gac gtc aag	cgc ttt tgg aag cgg	cag	1636
Val Thr Pro Ala Gly	His Ser Asp Val Lys	Arg Phe Trp Lys Arg	Gln	
443	448	453	458	
aaa cat agc tcc tga	gagcgcggga cttggacacg	gacctcggcg ggcgggactg		1691
Lys His Ser Ser *				
459				
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gagacctcgg accagccgcc ttg	atg aca gca tcc gcg tcc tcc ttt tca	230
	Met Thr Ala Ser Ala Ser Ser Phe Ser	
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Ser Ser Gln Gly Val Gln Gln Pro Ser Ile Tyr Ser Phe Ser Gln Ile		
10 15 20 25		
acc aga agc ttg ttt ctc agc aat ggt gtg gcc gcc aac gac aaa ctc	326	
Thr Arg Ser Leu Phe Leu Ser Asn Gly Val Ala Ala Asn Asp Lys Leu		
26 31 36 41		
ctt ctg tcc agc aat cgc atc acc gcc att gtc aat gcc tcg gtg gaa	374	
Leu Leu Ser Ser Asn Arg Ile Thr Ala Ile Val Asn Ala Ser Val Glu		
42 47 52 57		
gtg gtc aac gta ttc ttc gag ggc att cag tac ata aag gtg cct gtt	422	
Val Val Asn Val Phe Phe Glu Gly Ile Gln Tyr Ile Lys Val Pro Val		
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Thr Asp Ala Arg Asp Ser Arg Leu Tyr Asp Phe Phe Asp Pro Ile Ala		
74 79 84 89		
gat ctt atc cac acc atc gat atg agg cag ggc cgt acg ctg ctg cac	518	
Asp Leu Ile His Thr Ile Asp Met Arg Gln Gly Arg Thr Leu Leu His		
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Cys Met Ala Gly Val Ser Arg Ser Ala Ser Leu Cys Leu Ala Tyr Leu		
106 111 116 121		
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Met Lys Tyr His Ser Met Ser Leu Leu Asp Ala His Thr Trp Thr Lys		
122 127 132 137		
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Ser Arg Arg Pro Ile Ile Arg Pro Asn Asn Gly Phe Trp Glu Gln Leu		
138 143 148 153		
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Ile Asn Tyr Glu Phe Lys Leu Phe Asn Asn Asn Thr Val Arg Met Ile		
154 159 164 169		
aac tcg ccg gta ggt aac atc cct gac atc tat gag aag gac cta cgt	758	
Asn Ser Pro Val Gly Asn Ile Pro Asp Ile Tyr Glu Lys Asp Leu Arg		
170 175 180 185		
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Thr Met Ile Ser Met *		
186 191		
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                               Met Gln Arg Leu Leu Thr Pro Val Lys
                               1               5

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Arg Ile Leu Gln Leu Thr Arg Ala Val Gln Glu Thr Ser Leu Thr Pro
 10               15               20               25

gct cgc ctg ctc cca gta gcc cac caa agg ttt tct aca gcc tct gct      207
Ala Arg Leu Leu Pro Val Ala His Gln Arg Phe Ser Thr Ala Ser Ala
 26               31               36               41

gtc ccc ctg gcc aaa aca gat act tgg cca aag gac gtg ggc atc ctg      255
Val Pro Leu Ala Lys Thr Asp Thr Trp Pro Lys Asp Val Gly Ile Leu
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Ala Leu Glu Val Tyr Phe Pro Ala Gln Tyr Val Asp Gln Thr Asp Leu
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Glu Lys Tyr Asn Asn Val Glu Ala Gly Lys Tyr Thr Val Gly Leu Gly
 74               79               84               89

cag acc cgt atg ggc ttc tgc tca gtc caa gag gac atc aac tcc ctg      399
Gln Thr Arg Met Gly Phe Cys Ser Val Gln Glu Asp Ile Asn Ser Leu
 90               95               100              105

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Cys Leu Thr Val Val Gln Arg Leu Met Glu Arg Ile Gln Leu Pro Trp
106               111               116               121

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Asp Ser Val Gly Arg Leu Glu Val Gly Thr Glu Thr Ile Ile Asp Lys
122               127               132               137

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138               143               148               153

aat act gat att gag ggc ata gat acc acc aat gcc tgc tac ggt ggt      591

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Ser Gly Asn Ala Arg Pro Thr Gly Gly Ala Gly Ala Val Ala Met Leu	
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Ile Gly Pro Lys Ala Pro Leu Ala Leu Glu Arg Gly Leu Arg Gly Thr	
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His Met Glu Asn Val Tyr Asp Phe Tyr Lys Pro Asn Leu Ala Ser Glu	
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Tyr Pro Ile Val Asp Gly Lys Leu Ser Ile Gln Cys Tyr Leu Arg Ala	
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Phe Ser Tyr Gly Ser Gly Leu Ala Ala Ser Phe Phe Ser Phe Arg Val				
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Thr Ser Asp Leu Pro Lys Arg Leu Ala Ser Arg Lys Cys Val Ser Pro				
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Val Asn Phe Ser Pro Pro Gly Asp Thr Asn Ser Leu Phe Pro Gly Thr				
474	479	484	489	
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Pro Thr Glu Val	Pro Gln Ser His	Pro Gly Pro	Ser Ala Leu	Leu Leu		
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Leu Gln Leu Leu	Leu Pro Pro	Thr Ser Ala	Phe Phe Pro	Asn Ile Trp		
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agc ctg ctg gct	gcc cct ggc	tcc atc acc	cac caa gac	cta act gag		380
Ser Leu Leu Ala	Ala Pro Gly	Ser Ile Thr	His Gln Asp	Leu Thr Glu		
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Glu Ala Ala Leu	Asn Val Thr	Leu Gln Leu	Phe Leu Glu	Gln Pro Pro		
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cca ggc cgc ccc	cct ctt cgt	ctt gag gac	ttc ctg ggt	cga aca ctc		476
Pro Gly Arg Pro	Pro Leu Arg	Leu Glu Asp	Phe Leu Gly	Arg Thr Leu		
67	72	77		82		
ctt gct gat gac	ctc ttt gcc	gcc tac ttt	gga cct ggt	tct tct cgg		524
Leu Ala Asp Asp	Leu Phe Ala	Ala Tyr Phe	Gly Pro Gly	Ser Ser Arg		
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Arg Phe Arg Ala	Ala Leu Gly	Glu Val Ser	Arg Ala Asn	Ala Ala Gln		
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Glu Arg Leu Gly	Gln Gly Arg	Ala Arg Leu	Val Gly Ala	Leu Arg Glu		
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Thr Val Val Ala	Ala Arg Ala	Leu Asp His	Thr Leu Ala	Arg Gln Arg		
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Asp Cys Glu Glu Leu Ser Cys Pro Arg Asn Trp Leu Gly Phe Thr Leu	
211 216 221 226	
ctc acc tct ggc tac ttt gga act cat ccc ccg aaa cct cca ggg aaa	956
Leu Thr Ser Gly Tyr Phe Gly Thr His Pro Pro Lys Pro Pro Gly Lys	
227 232 237 242	
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Cys Ser His Gly Gly His Phe Asp Arg Ser Ser Ser Gln Pro Pro Arg	
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Gly Gly Ile Asn Lys Asp Ser Thr Ser Pro Gly Phe Ser Pro His His	
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Ser Pro Lys Asp Ala Phe Leu Thr Asn Gln Val Glu Ser Leu Thr Gln				
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483	488	493	498	
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Met Glu Asp Gly Pro His Pro Gly Leu Tyr Pro Leu Thr Gln Pro Val				
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Ala Leu Lys Asn Gly Ala Val Ser Leu Val Ile Asn Leu Gly Ser Gly	
184 189 194 199	
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Ala Phe Glu Ala Leu Val Glu Pro Val Asn Gly Lys Phe Asn Asp Asn	
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Ile Gly His Ala Met Val Thr Ile Ser Val Asp Gly Ile Leu Thr Thr	
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Ala	Ile	Glu	Met	Leu	Asp	Gly	His	Leu	Tyr	Leu	Leu	Leu	Asp	Met	Gly		
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Ser	Val	Asn	Thr	Leu	Arg	Thr	Pro	Tyr	Thr	Ala	Pro	Gly	Glu	Ser	Glu		
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Lys	Ala	Gly	Leu	Val	Phe	Pro	Thr	Glu	Val	Trp	Thr	Ala	Leu	Leu	Asn		
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Lys Asn Asn Gly Met Cys Arg Asp Gly Trp Asn Arg Tyr Val Cys Asp				
536	541	546	551	
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Cys Ser Gly Thr Gly Tyr Leu Gly Arg Ser Cys Glu Arg Glu Ala Thr				
552	557	562	567	
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Val Leu Ser Tyr Asp Gly Ser Met Phe Met Lys Ile Gln Leu Pro Val				
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Val Met His Thr Glu Ala Glu Asp Val Ser Leu Arg Phe Arg Ser Gln				
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Asn Ile Glu Thr Gly Ile Ile Thr Glu Arg Arg Tyr Leu Ser Ser Val				
696	701	706	711	
ccc tcc aac ttc att gga cac ctg cag agc ttg aca ttt aat gga atg				2391
Pro Ser Asn Phe Ile Gly His Leu Gln Ser Leu Thr Phe Asn Gly Met				
712	717	722	727	
gca tac att gac ctg tgt aaa aat ggc gac ata gat tac tgt gag ctt				2439
Ala Tyr Ile Asp Leu Cys Lys Asn Gly Asp Ile Asp Tyr Cys Glu Leu				
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Ile Leu Tyr Asn Ser Gly Asp Gly Asn Asp Phe Ile Val Val Glu Leu	
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Ser Leu Pro Lys Leu Val His Ala Lys Glu Gly Phe Gln Gly Cys Leu	
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Ala Ser Val Asp Leu Asn Gly Arg Leu Pro Asp Leu Ile Ser Asp Ala	
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 Ala Ser Leu Ser Tyr Arg Gly Asp Gln Gln Asp Tyr Phe Leu Asn Leu  
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Met Glu Val Ala Glu Val Glu  
1 5

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Ser Pro Leu Asn Pro Ser Cys Lys Ile Met Thr Phe Arg Pro Ser Met	
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Glu Glu Phe Arg Glu Phe Asn Lys Tyr Leu Ala Tyr Met Glu Ser Lys	
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Gly Ala His Arg Ala Gly Leu Ala Lys Val Ile Pro Pro Lys Glu Trp	
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Lys Pro Arg Gln Cys Tyr Asp Asp Ile Asp Asn Leu Leu Ile Pro Ala	
56 61 66 71	
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Pro Ile Gln Gln Met Val Thr Gly Gln Ser Gly Leu Phe Thr Gln Tyr	
72 77 82 87	
aac atc cag aaa aaa gcg atg act gtg aag gag ttc agg cag ctg gcc	522
Asn Ile Gln Lys Lys Ala Met Thr Val Lys Glu Phe Arg Gln Leu Ala	
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Asn Ser Gly Lys Tyr Cys Thr Pro Arg Tyr Leu Asp Tyr Glu Asp Leu	
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Glu Arg Lys Tyr Trp Lys Asn Leu Thr Phe Val Ala Pro Ile Tyr Gly	
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Ala Asp Ile Asn Gly Ser Ile Tyr Asp Glu Gly Val Asp Glu Trp Asn	
136 141 146 151	
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Ile Ala Arg Leu Asn Thr Val Leu Asp Val Val Glu Glu Glu Cys Gly	
152 157 162 167	
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Ile Ser Ile Glu Gly Val Asn Thr Pro Tyr Leu Tyr Phe Gly Met Trp	
168 173 178 183	
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Lys Thr Thr Phe Ala Trp His Thr Glu Asp Met Asp Leu Tyr Ser Ile	
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Ser Pro Ser Val Leu Lys Lys Tyr Gly Ile Pro Phe Asp Lys Ile Thr				
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264	269	274	279	
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Lys Asp Met Val Lys Ile Ser Met Asp Ile Phe Val Arg Lys Phe Gln				
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Pro Asp Arg Tyr Gln Leu Trp Lys Gln Gly Lys Asp Ile Tyr Thr Ile				
328	333	338	343	
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Asp His Thr Lys Pro Thr Pro Ala Ser Thr Pro Glu Val Lys Ala Trp				
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Leu Gln Arg Arg Arg Lys Val Arg Lys Ala Ser Arg Ser Phe Gln Cys				
360	365	370	375	
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Ala Arg Ser Thr Ser Lys Arg Pro Lys Ala Asp Glu Glu Glu Glu Val				
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Ser Asp Glu Val Asp Gly Ala Glu Val Pro Asn Pro Asp Ser Val Thr				
392	397	402	407	
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Val Glu Gln Asn Leu Ser Asp His Ile Lys Leu Ser Gly Asn Ser Cys				
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Gln Glu Tyr Asn Ala Thr Val Ala Arg Met Lys Pro His Cys Ala Ile	
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Cys Thr Leu Leu Met Pro Tyr His Lys Pro Asp Ser Ser Asn Glu Glu	
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Pro Pro Ser Ser Asn Gly Leu Ser Gln Gly Pro Pro Cys Trp Asp Leu				
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His Pro Gly Cys Arg His Pro Gly Thr Arg Ser Ser Leu Pro Ser Leu				
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33 38 43 48				

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Gln Ile Trp Ile Asp Lys Thr Val Ile Asn Asp His Ile Cys Leu Thr	
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Phe Thr Asp Asn Gly Asn Gly Met Thr Ser Asp Lys Leu His Lys Met	
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Leu Ser Phe Gly Phe Ser Asp Lys Val Thr Met Asn Gly His Val Pro	
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Val Gly Leu Tyr Gly Asn Gly Phe Lys Ser Gly Ser Met Arg Leu Gly	
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Gly Thr Arg Ile Ile Ile Trp Asn Leu Arg Ser Tyr Lys Asn Ala Thr	
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Glu Phe Asp Phe Glu Lys Asp Lys Tyr Asp Ile Arg Ile Pro Glu Asp	
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Ile Leu Tyr Leu Lys Pro Arg Met Gln Ile Ile Leu Arg Gly Gln Lys	
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Gln	Val	Pro	Pro	Gln	Ser	Glu	Pro	Glu	Ser	Asn	Ser	Leu	Lys	Arg	Arg	
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Val Phe Leu Leu Glu Ser Ile Asn Gly Lys Ser Glu Ser Pro Asp His				
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Met Val Ser Gln Tyr Gln Gln Ala Leu Glu Glu Ile Glu Arg Leu Lys				
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Tyr Lys Ser Glu Val Glu Leu Leu Glu Met Glu Lys Ser Gln Ile Arg				
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 <213> Homo sapiens

<220>  
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 <222> (122)..(2119)

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 c atg gac agg ccg gcg gcg gcg gcg gcg ggc tgc gag ggc ggc 166  
 Met Asp Arg Pro Ala Ala Ala Ala Ala Gly Cys Glu Gly Gly  
 1 5 10  
 ggg ggc ccg aac ccg ggg ccg gcg ggc ggc agg agg cct cct ccg gcc 214  
 Gly Gly Pro Asn Pro Gly Pro Ala Gly Gly Arg Arg Pro Pro Arg Ala  
 16 21 26 31  
 gcg ggg ggc gcc acc gcc ggc tcc ccg cag ccc agc gtg gag acc ctg 262  
 Ala Gly Gly Ala Thr Ala Gly Ser Arg Gln Pro Ser Val Glu Thr Leu  
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 gac agt ccc aca gga tca cat gtt gaa tgg tgt aaa cag ctt ata gct 310  
 Asp Ser Pro Thr Gly Ser His Val Glu Trp Cys Lys Gln Leu Ile Ala  
 48 53 58 63  
 gct aca att tct agt cag att tca ggt tca gtg aca tca gaa aat gtg 358  
 Ala Thr Ile Ser Ser Gln Ile Ser Gly Ser Val Thr Ser Glu Asn Val  
 64 69 74 79  
 tcc aga gat tac aag gct cta agg gat gga aat aag ctg gca cag atg 406  
 Ser Arg Asp Tyr Lys Ala Leu Arg Asp Gly Asn Lys Leu Ala Gln Met  
 80 85 90 95  
 gaa gag gct cca ctt ttc cca gga gaa tca att aaa gcc att gtg aaa 454  
 Glu Glu Ala Pro Leu Phe Pro Gly Glu Ser Ile Lys Ala Ile Val Lys  
 96 101 106 111  
 gat gtc atg tat atc tgc cca ttt atg gga gca gtg agt gga acc ctg 502  
 Asp Val Met Tyr Ile Cys Pro Phe Met Gly Ala Val Ser Gly Thr Leu  
 112 117 122 127  
 aca gtg acg gac ttt aag ctg tac ttc aaa aat gtc gag agg gac ccg 550  
 Thr Val Thr Asp Phe Lys Leu Tyr Phe Lys Asn Val Glu Arg Asp Pro  
 128 133 138 143  
 cat ttt atc ctt gat gtt ccc ctt gga gtg atc agc aga gtg gag aag 598  
 His Phe Ile Leu Asp Val Pro Leu Gly Val Ile Ser Arg Val Glu Lys  
 144 149 154 159  
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 Ile Gly Ala Gln Ser His Gly Asp Asn Ser Cys Gly Ile Glu Ile Val  
 160 165 170 175  
 tgc aag gat atg agg aac ttg ccg ctt gct tat aaa cag gaa gaa cag 694  
 Cys Lys Asp Met Arg Asn Leu Arg Leu Ala Tyr Lys Gln Glu Glu Gln  
 176 181 186 191  
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 Ser Lys Leu Gly Ile Phe Glu Asn Leu Asn Lys His Ala Phe Pro Leu  
 192 197 202 207  
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 Ser Asn Gly Gln Ala Leu Phe Ala Phe Ser Tyr Lys Glu Lys Phe Pro

208	213	218	223	
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Ile Asn Gly Trp Lys Val Tyr Asp Pro Val Ser Glu Tyr Lys Arg Gln				
224	229	234	239	
ggc ttg cca aat gag agt tgg aaa ata tcc aaa ata aac agt aat tat				886
Gly Leu Pro Asn Glu Ser Trp Lys Ile Ser Lys Ile Asn Ser Asn Tyr				
240	245	250	255	
gag ttc tgt gac acc tac cct gcc atc att gtt gtg cca act agt gta				934
Glu Phe Cys Asp Thr Tyr Pro Ala Ile Ile Val Val Pro Thr Ser Val				
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aaa gat gat gac ctt tca aaa gtg gca gct ttt cga gca aaa ggc aga				982
Lys Asp Asp Asp Leu Ser Lys Val Ala Ala Phe Arg Ala Lys Gly Arg				
272	277	282	287	
gtc cct gtg ttg tca tgg att cat ccg gaa agt caa gca acg att acc				1030
Val Pro Val Leu Ser Trp Ile His Pro Glu Ser Gln Ala Thr Ile Thr				
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cgt tgc agc cag cca ctt gtg ggt ccc aat gat aag cgc tgc aaa gag				1078
Arg Cys Ser Gln Pro Leu Val Gly Pro Asn Asp Lys Arg Cys Lys Glu				
304	309	314	319	
gat gaa aaa tac ttg caa aca ata atg gat gct aac gca cag tca cac				1126
Asp Glu Lys Tyr Leu Gln Thr Ile Met Asp Ala Asn Ala Gln Ser His				
320	325	330	335	
aag ctt atc atc ttt gat gct cga caa aac agt gtc gct gat acc aac				1174
Lys Leu Ile Ile Phe Asp Ala Arg Gln Asn Ser Val Ala Asp Thr Asn				
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aag aca aag ggt gga gga tat gaa agt gaa agt gct tac cca aat gca				1222
Lys Thr Lys Gly Gly Gly Tyr Glu Ser Glu Ser Ala Tyr Pro Asn Ala				
352	357	362	367	
gaa ctt gtg ttc ttg gag atc cac aac att cat gtc atg cga gag tca				1270
Glu Leu Val Phe Leu Glu Ile His Asn Ile His Val Met Arg Glu Ser				
368	373	378	383	
cta cgc aaa tta aaa gag att gtg tac cct tcg atc gat gag gcg cgg				1318
Leu Arg Lys Leu Lys Glu Ile Val Tyr Pro Ser Ile Asp Glu Ala Arg				
384	389	394	399	
tgg ctc tcc aat gtg gat ggg acg cat tgg ctg gaa tat ata agg atg				1366
Trp Leu Ser Asn Val Asp Gly Thr His Trp Leu Glu Tyr Ile Arg Met				
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ctg ctt gct ggg gca gta aga att gct gat aaa ata gaa tct ggg aaa				1414
Leu Leu Ala Gly Ala Val Arg Ile Ala Asp Lys Ile Glu Ser Gly Lys				
416	421	426	431	
aca tct gtg gtg gtg cat tgc agc gac ggt tgg gac cga aca gcc cag				1462
Thr Ser Val Val Val His Cys Ser Asp Gly Trp Asp Arg Thr Ala Gln				
432	437	442	447	

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Lys	Gly	Phe	Glu	Thr	Leu	Val	Glu	Lys	Glu	Trp	Ile	Ser	Phe	Gly	His	
464					469					474					479	
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Arg	Phe	Ala	Leu	Arg	Val	Gly	His	Gly	Asn	Asp	Asn	His	Ala	Asp	Ala	
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Asp	Arg	Ser	Pro	Ile	Phe	Leu	Gln	Phe	Val	Asp	Cys	Val	Trp	Gln	Met	
496					501					506					511	
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Thr	Arg	Gln	Phe	Pro	Ser	Ala	Phe	Glu	Phe	Asn	Glu	Leu	Phe	Leu	Ile	
512					517					522					527	
aca	att	ttg	gat	cac	ctt	tat	agc	tgt	ctt	ttt	ggg	acc	ttt	ttg	tgc	1750
Thr	Ile	Leu	Asp	His	Leu	Tyr	Ser	Cys	Leu	Phe	Gly	Thr	Phe	Leu	Cys	
528					533					538					543	
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Asn	Cys	Glu	Gln	Gln	Arg	Phe	Lys	Glu	Asp	Val	Tyr	Thr	Lys	Thr	Ile	
544					549					554					559	
tct	tta	tgg	tcg	tat	atc	aat	agc	cag	cta	gac	gag	ttt	tct	aat	ccc	1846
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Phe	Phe	Val	Asn	Tyr	Glu	Asn	His	Val	Leu	Tyr	Pro	Val	Ala	Ser	Leu	
576					581					586					591	
agt	cat	ttg	gaa	ttg	tgg	gta	aat	tat	tat	gta	cga	tgg	aat	cca	cgg	1942
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592					597					602					607	
atg	aga	cct	cag	atg	ccc	att	cac	cag	aat	ctc	aag	gag	ctg	ctg	gcc	1990
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608					613					618					623	
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Val	Arg	Ala	Glu	Leu	Gln	Lys	Arg	Val	Glu	Gly	Leu	Gln	Arg	Glu	Val	
624					629					634					639	
gcc	acg	cgc	gcc	gtc	tca	tcc	tca	tct	gag	cgg	ggc	tcc	tcg	ccc	tcc	2086
Ala	Thr	Arg	Ala	Val	Ser	Ser	Ser	Ser	Glu	Arg	Gly	Ser	Ser	Pro	Ser	
640					645					650					655	
cac	tcc	gcc	acc	tcc	gtc	cac	acc	tcg	gtc	tga	tgggcgag	aaatatgtaa				2137
His	Ser	Ala	Thr	Ser	Val	His	Thr	Ser	Val	*						
656					661					666						

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<212> DNA
<213> Homo sapiens

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<222> (1)..(2411)
<223> n = a,t,c or g

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aaccctcag atactgatgc agttcgtggc cagatagtgg tcagtttaca gacacgagac 360
agaataggaa ccggcggctc ggtggtggac tgcagaggac tgttagaaaa tgaaggaacg 420
gtgtatgaag actccgggcc tgggaggccg ctcagctgct tc atg gag gaa cca 474
Met Glu Glu Pro
1
gcc cct tac aca gat agc acc ggt gct gct gct gga gga ggg aat tgc 522

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Ala	Pro	Tyr	Thr	Asp	Ser	Thr	Gly	Ala	Ala	Ala	Gly	Gly	Gly	Asn	Cys	
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Arg	Phe	Val	Glu	Ser	Pro	Ser	Gln	Asp	Gln	Arg	Leu	Gln	Ala	Gln	Arg	
21					26					31					36	
ctt	cga	aac	cct	gat	gtg	cga	ggt	tca	cta	cag	acg	ccc	cag	aac	cga	618
Leu	Arg	Asn	Pro	Asp	Val	Arg	Gly	Ser	Leu	Gln	Thr	Pro	Gln	Asn	Arg	
37					42					47					52	
cca	cac	ggc	cac	cag	tcc	ccg	gaa	ctg	ccc	gaa	ggc	tac	gaa	caa	aga	666
Pro	His	Gly	His	Gln	Ser	Pro	Glu	Leu	Pro	Glu	Gly	Tyr	Glu	Gln	Arg	
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Thr	Thr	Val	Gln	Gly	Gln	Val	Tyr	Phe	Leu	His	Thr	Gln	Thr	Gly	Val	
69					74					79					84	
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Ser	Thr	Trp	His	Asp	Pro	Arg	Ile	Pro	Arg	Asp	Leu	Asn	Ser	Val	Asn	
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Cys	Asp	Glu	Leu	Gly	Pro	Leu	Pro	Pro	Gly	Trp	Glu	Val	Arg	Ser	Thr	
101					106					111					116	
gtt	tct	ggg	agg	ata	tat	ttt	gta	gat	cat	aat	aac	cga	aca	acc	cag	858
Val	Ser	Gly	Arg	Ile	Tyr	Phe	Val	Asp	His	Asn	Asn	Arg	Thr	Thr	Gln	
117					122					127					132	
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Phe	Thr	Asp	Pro	Arg	Leu	His	His	Ile	Met	Asn	His	Gln	Cys	Gln	Leu	
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Lys	Glu	Pro	Ser	Gln	Pro	Leu	Pro	Leu	Pro	Ser	Glu	Gly	Ser	Leu	Glu	
149					154					159					164	
gac	gag	gag	ctt	cct	gcc	cag	aga	tac	gaa	aga	gat	cta	gtc	cag	aag	1002
Asp	Glu	Glu	Leu	Pro	Ala	Gln	Arg	Tyr	Glu	Arg	Asp	Leu	Val	Gln	Lys	
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Leu	Lys	Val	Leu	Arg	His	Glu	Leu	Ser	Leu	Gln	Gln	Pro	Gln	Ala	Gly	
181					186					191					196	
cat	tgc	cgc	atc	gaa	gtg	tcc	aga	gaa	gaa	atc	ttt	gag	gag	tct	tac	1098
His	Cys	Arg	Ile	Glu	Val	Ser	Arg	Glu	Glu	Ile	Phe	Glu	Glu	Ser	Tyr	
197					202					207					212	
cgc	cag	ata	atg	aag	atg	cga	ccg	aaa	gac	ttg	aaa	aaa	cgg	ctg	atg	1146
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213					218					223					228	
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Val	Lys	Phe	Arg	Gly	Glu	Glu	Gly	Leu	Asp	Tyr	Gly	Gly	Val	Ala	Arg	

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Glu Trp Leu Tyr Leu Leu Cys His Glu Met Leu Asn Pro Tyr Tyr Gly				
245	250	255	260	
ctc ttc cag tat tct acg gac aat att tac atg ttg caa ata aat ccg				1290
Leu Phe Gln Tyr Ser Thr Asp Asn Ile Tyr Met Leu Gln Ile Asn Pro				
261	266	271	276	
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Asp Ser Ser Ile Asn Pro Asp His Leu Ser Tyr Phe His Phe Val Gly				
277	282	287	292	
cgg atc atg ggg ctg ggc tgt gtt cca tgg aca cta cat caa cgg ggg				1386
Arg Ile Met Gly Leu Gly Cys Val Pro Trp Thr Leu His Gln Arg Gly				
293	298	303	308	
ctt cac agt gcc ctt cta caa gca gct gct ggg gaa gcc cat cca gct				1434
Leu His Ser Ala Leu Leu Gln Ala Ala Ala Gly Glu Ala His Pro Ala				
309	314	319	324	
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Leu Arg Ser Gly Ile Cys Gly Pro Arg Ala Ala *				
325	330	335		
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (183)..(6386)

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 Glu Asp Ile Pro Ala Asp Cys Pro Lys Glu Ile Tyr Glu His Tyr Phe  
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 Val Phe Ala Ala Ile Trp Ala Phe Gly Gly Ala Met Val Gln Asp Gln  
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 Lys Thr Val Lys Phe Pro Ser Gln Gly Thr Ile Phe Asp Tyr Tyr Ile  
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 Asp Pro Glu Thr Lys Lys Phe Glu Pro Trp Ser Lys Leu Val Pro Gln  
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 Phe Glu Phe Asp Pro Glu Met Pro Leu Gln Ala Cys Leu Val His Thr  
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 Ser Glu Thr Ile Arg Val Cys Tyr Phe Met Glu Arg Leu Met Ala Arg  
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 cag cgg cct gtc atg ctg gtg ggc acg gct ggc act ggc aag tcg gtg 611  
 Gln Arg Pro Val Met Leu Val Gly Thr Ala Gly Thr Gly Lys Ser Val  
 128 133 138 143  
 ctg gtg gga gct aag ctg gcc agc ctt gac ccc gag gca tac ctg gtg 659

Leu Val Gly Ala Lys	Leu Ala Ser Leu Asp	Pro Glu Ala Tyr Leu Val	
144	149	154	159
aaa aac gtg cca ttc	aac tac tac acc acg	tca gca atg ctg cag gct	707
Lys Asn Val Pro Phe	Asn Tyr Tyr Thr Thr	Ser Ala Met Leu Gln Ala	
160	165	170	175
gtc ctg gag aag cct	ctg gaa aag aag gct	ggc aga aac tat ggc cct	755
Val Leu Glu Lys Pro	Leu Glu Lys Lys Ala	Gly Arg Asn Tyr Gly Pro	
176	181	186	191
cca ggg aac aag aaa	ctc atc tat ttc att	gat gac atg aac atg cct	803
Pro Gly Asn Lys Lys	Leu Ile Tyr Phe Ile	Asp Asp Met Asn Met Pro	
192	197	202	207
gag gtg gat gcc tac	ggg acg gtg cag ccc	cac acc atc atc cgg cag	851
Glu Val Asp Ala Tyr	Gly Thr Val Gln Pro	His Thr Ile Ile Arg Gln	
208	213	218	223
cat ctg gac tat ggc	cac tgg tat gat cgg	agc aag ctg tcc cta aag	899
His Leu Asp Tyr Gly	His Trp Tyr Asp Arg	Ser Lys Leu Ser Leu Lys	
224	229	234	239
gag atc aca aat gta	cag tat gtt tcc tgt	atg aac ccc acg gca ggc	947
Glu Ile Thr Asn Val	Gln Tyr Val Ser Cys	Met Asn Pro Thr Ala Gly	
240	245	250	255
agc ttc acc atc aac	ccc cgg ctt cag cgt	cac ttc agc gtg ttt gtc	995
Ser Phe Thr Ile Asn	Pro Arg Leu Gln Arg	His Phe Ser Val Phe Val	
256	261	266	271
ctc tcc ttc ccg ggg	gca gat gcc ctg tcc	tct atc tac agc atc atc	1043
Leu Ser Phe Pro Gly	Ala Asp Ala Leu Ser	Ser Ile Tyr Ser Ile Ile	
272	277	282	287
ctc act cag cat ctg	aag ctc gga aac ttc	ccg gcg tcc ctg cag aaa	1091
Leu Thr Gln His Leu	Lys Leu Gly Asn Phe	Pro Ala Ser Leu Gln Lys	
288	293	298	303
tcc atc ccc cca ctg	atc gat ctg gcc ctc	gcc ttc cac cag aaa att	1139
Ser Ile Pro Pro Leu	Ile Asp Leu Ala Leu	Ala Phe His Gln Lys Ile	
304	309	314	319
gct acc acc ttc cta	ccc aca gga atc aaa	ttc cac tac atc ttc aac	1187
Ala Thr Thr Phe Leu	Pro Thr Gly Ile Lys	Phe His Tyr Ile Phe Asn	
320	325	330	335
ctc aga gat ttt gcc	aac att ttc cag ggc	att ctc ttc tcc tca gtg	1235
Leu Arg Asp Phe Ala	Asn Ile Phe Gln Gly	Ile Leu Phe Ser Ser Val	
336	341	346	351
gaa tgt gtg aaa tcc	aca tgg gat ctt ata	agg ctc tat ctg cat gaa	1283
Glu Cys Val Lys Ser	Thr Trp Asp Leu Ile	Arg Leu Tyr Leu His Glu	
352	357	362	367
tca aat cga gtt tat	cgg gat aag atg gta	gaa gaa aag gac ttt gat	1331
Ser Asn Arg Val Tyr	Arg Asp Lys Met Val	Glu Glu Lys Asp Phe Asp	

368	373	378	383	
ctt ttt gat aaa atc	cag aca gaa gtg ctc	aag aaa act ttt gat	gat	1379
Leu Phe Asp Lys Ile	Gln Thr Glu Val Leu	Lys Lys Thr Phe Asp	Asp	
384	389	394	399	
att gaa gac cct gtg	gag cag acc caa agc	ccg aac ctg tat tgt	cac	1427
Ile Glu Asp Pro Val	Glu Gln Thr Gln Ser	Pro Asn Leu Tyr Cys	His	
400	405	410	415	
ttt gca aat ggt att	ggg gag ccc aaa tac	atg cct gta cag tct	tgg	1475
Phe Ala Asn Gly Ile	Gly Glu Pro Lys Tyr	Met Pro Val Gln Ser	Trp	
416	421	426	431	
gaa ctt ttg acc cag	act ctg gtg gag gcc	ttg gag aac cac aat	gaa	1523
Glu Leu Leu Thr Gln	Thr Leu Val Glu Ala	Leu Glu Asn His Asn	Glu	
432	437	442	447	
gtc aac aca gtg atg	gac cta gtt ctc ttt	gag gat gcc atg cgc	cat	1571
Val Asn Thr Val Met	Asp Leu Val Leu Phe	Glu Asp Ala Met Arg	His	
448	453	458	463	
gtc tgc cat atc aat	cgc atc ttg gag tcc	ccg cgg gga aat gct	ctg	1619
Val Cys His Ile Asn	Arg Ile Leu Glu Ser	Pro Arg Gly Asn Ala	Leu	
464	469	474	479	
ctg gtt ggt gta ggt	ggg agc ggc aag cag	agc ctg aca agg ctg	gca	1667
Leu Val Gly Val Gly	Gly Ser Gly Lys Gln	Ser Leu Thr Arg Leu	Ala	
480	485	490	495	
gct ttc atc agc tcc	atg gat gtc ttc cag	atc aca ctg cgc aaa	ggc	1715
Ala Phe Ile Ser Ser	Met Asp Val Phe Gln	Ile Thr Leu Arg Lys	Gly	
496	501	506	511	
tac cag atc cag gac	ttc aag atg gac ctg	gcc agc ctg tgt ctg	aaa	1763
Tyr Gln Ile Gln Asp	Phe Lys Met Asp Leu	Ala Ser Leu Cys Leu	Lys	
512	517	522	527	
gct gga gtg aag aat	ctc aac aca gtg ttt	ctc atg act gat gcc	caa	1811
Ala Gly Val Lys Asn	Leu Asn Thr Val Phe	Leu Met Thr Asp Ala	Gln	
528	533	538	543	
gtg gct gat gag agg	ttc ctt gtg ctc atc	aat gat ctt ttg gca	tct	1859
Val Ala Asp Glu Arg	Phe Leu Val Leu Ile	Asn Asp Leu Leu Ala	Ser	
544	549	554	559	
ggg gag atc cca gat	ctc tac tct gat gat	gaa gtt gaa aac atc	ata	1907
Gly Glu Ile Pro Asp	Leu Tyr Ser Asp Asp	Glu Val Glu Asn Ile	Ile	
560	565	570	575	
agc aat gtg agg aat	gaa gtc aag agc cag	ggt ctg gtt gac aac	aga	1955
Ser Asn Val Arg Asn	Glu Val Lys Ser Gln	Gly Leu Val Asp Asn	Arg	
576	581	586	591	
gag aac tgt tgg aag	ttc ttt ata gat cgg	atc cgg cga cag ctg	aag	2003
Glu Asn Cys Trp Lys	Phe Phe Ile Asp Arg	Ile Arg Arg Gln Leu	Lys	
592	597	602	607	

gtg act ctc tgt ttc tcc cct gtg gga aac aag cta aga gtc cgc agc	2051
Val Thr Leu Cys Phe Ser Pro Val Gly Asn Lys Leu Arg Val Arg Ser	
608 613 618 623	
agg aag ttc cca gcc att gtg aac tgc aca gcc atc cac tgg ttc cac	2099
Arg Lys Phe Pro Ala Ile Val Asn Cys Thr Ala Ile His Trp Phe His	
624 629 634 639	
gag tgg cct cag caa gca ttg gag tct gtc agc ctc cgc ttc ttg cag	2147
Glu Trp Pro Gln Gln Ala Leu Glu Ser Val Ser Leu Arg Phe Leu Gln	
640 645 650 655	
aac aca gag ggc att gag ccc aca gta aag cag tgc att agc aaa ttc	2195
Asn Thr Glu Gly Ile Glu Pro Thr Val Lys Gln Ser Ile Ser Lys Phe	
656 661 666 671	
atg gcc ttt gtc cac aca agt gtc aac caa aca tcc cag tct tat ctg	2243
Met Ala Phe Val His Thr Ser Val Asn Gln Thr Ser Gln Ser Tyr Leu	
672 677 682 687	
agc aat gaa cag cgc tac aac tat aca act ccc aag tcc ttt ctg gag	2291
Ser Asn Glu Gln Arg Tyr Asn Tyr Thr Thr Pro Lys Ser Phe Leu Glu	
688 693 698 703	
ttc atc aga ctc tac cag agc ttg ttg cac agg cac aga aaa gag ctc	2339
Phe Ile Arg Leu Tyr Gln Ser Leu Leu His Arg His Arg Lys Glu Leu	
704 709 714 719	
aag tgc aag aca gag cgg ttg gag aac ggg ctg ctg aag ctg cat agc	2387
Lys Cys Lys Thr Glu Arg Leu Glu Asn Gly Leu Leu Lys Leu His Ser	
720 725 730 735	
acc tct gcc cag gtg gat gat ctg aaa gca aag ctg gct gcc cag gaa	2435
Thr Ser Ala Gln Val Asp Asp Leu Lys Ala Lys Leu Ala Ala Gln Glu	
736 741 746 751	
gta gag ctg aag cag aaa aat gaa gat gca gac aaa ctg att cag gtc	2483
Val Glu Leu Lys Gln Lys Asn Glu Asp Ala Asp Lys Leu Ile Gln Val	
752 757 762 767	
gtg ggt gtg gag act gac aaa gtg agc aga gag aaa gcc atg gca gat	2531
Val Gly Val Glu Thr Asp Lys Val Ser Arg Glu Lys Ala Met Ala Asp	
768 773 778 783	
gaa gag gag cag aag gtg gcc gtc atc atg cta gag gtg aaa cag aag	2579
Glu Glu Glu Gln Lys Val Ala Val Ile Met Leu Glu Val Lys Gln Lys	
784 789 794 799	
cag aag gac tgt gag gag gac ctg gca aag gct gag cca gca ctc aca	2627
Gln Lys Asp Cys Glu Glu Asp Leu Ala Lys Ala Glu Pro Ala Leu Thr	
800 805 810 815	
gca gcg cag gca gct ctc aac acc ctg aac aag acc aac ctg aca gag	2675
Ala Ala Gln Ala Ala Leu Asn Thr Leu Asn Lys Thr Asn Leu Thr Glu	
816 821 826 831	

ctg aag tca ttt ggc tct ccg cct ctg gcc gtc agc aat gtc agc gct	2723
Leu Lys Ser Phe Gly Ser Pro Pro Leu Ala Val Ser Asn Val Ser Ala	
832 837 842 847	
gcg gtg atg gta ctg atg gct ccc agg ggt agg gtg ccc aag gac cgg	2771
Ala Val Met Val Leu Met Ala Pro Arg Gly Arg Val Pro Lys Asp Arg	
848 853 858 863	
agc tgg aag gct gct aag gtc acc atg gcc aaa gtg gat ggc ttc ctg	2819
Ser Trp Lys Ala Ala Lys Val Thr Met Ala Lys Val Asp Gly Phe Leu	
864 869 874 879	
gac tcg cta ata aac ttc aac aaa gag aac att cac gag aac tgc ctc	2867
Asp Ser Leu Ile Asn Phe Asn Lys Glu Asn Ile His Glu Asn Cys Leu	
880 885 890 895	
aaa gcc atc agg ccg tat ctg caa gac ccg gag ttc aat cct gag ttt	2915
Lys Ala Ile Arg Pro Tyr Leu Gln Asp Pro Glu Phe Asn Pro Glu Phe	
896 901 906 911	
gtg gcc acc aaa tcc tat gcg gct gca ggc ctc tgc tcc tgg gtc atc	2963
Val Ala Thr Lys Ser Tyr Ala Ala Ala Gly Leu Cys Ser Trp Val Ile	
912 917 922 927	
aat att gtg aga ttt tat gag gtg ttc tgt gat gtg gaa ccc aag cgc	3011
Asn Ile Val Arg Phe Tyr Glu Val Phe Cys Asp Val Glu Pro Lys Arg	
928 933 938 943	
cag gca ctg aac aaa gcc acc gcg gac ctc aca gct gcc cag gag aag	3059
Gln Ala Leu Asn Lys Ala Thr Ala Asp Leu Thr Ala Ala Gln Glu Lys	
944 949 954 959	
ctg gct gcc atc aaa gcc aag atc gct cac ctt aat gaa aac ctg gca	3107
Leu Ala Ala Ile Lys Ala Lys Ile Ala His Leu Asn Glu Asn Leu Ala	
960 965 970 975	
aag ctc aca gcc agg ttt gag aaa gca aca gca gac aaa ctc aaa tgt	3155
Lys Leu Thr Ala Arg Phe Glu Lys Ala Thr Ala Asp Lys Leu Lys Cys	
976 981 986 991	
cag caa gaa gcc gaa gtg acc gca gtc acc atc tcc ctt gcc aac cgc	3203
Gln Gln Glu Ala Glu Val Thr Ala Val Thr Ile Ser Leu Ala Asn Arg	
992 997 1002 1007	
ctg gtt gga gga ctc gct tct gaa aac gtg agg tgg gca gat gcc gtg	3251
Leu Val Gly Gly Leu Ala Ser Glu Asn Val Arg Trp Ala Asp Ala Val	
1008 1013 1018 1023	
cag aac ttc aaa cag cag gaa agg acg tta tgt gga gac att tta ctt	3299
Gln Asn Phe Lys Gln Gln Glu Arg Thr Leu Cys Gly Asp Ile Leu Leu	
1024 1029 1034 1039	
ata acg gct ttc att tcc tac ctt ggc ttc ttc aca aag aaa tac cgg	3347
Ile Thr Ala Phe Ile Ser Tyr Leu Gly Phe Phe Thr Lys Lys Tyr Arg	
1040 1045 1050 1055	
cag agc ctc ctg gac aga act tgg agg ccc tac ctg agc cag ctg aaa	3395

Gln Ser Leu Leu Asp Arg Thr Trp Arg Pro Tyr Leu Ser Gln Leu Lys	
1056 1061 1066 1071	
act ccc att cca gtc acc cca gcc ctg gat ccc ctg agg atg ctg atg	3443
Thr Pro Ile Pro Val Thr Pro Ala Leu Asp Pro Leu Arg Met Leu Met	
1072 1077 1082 1087	
gat gat gct gac gtg gct gcc tgg cag aac gag ggc ctc cca gcc gac	3491
Asp Asp Ala Asp Val Ala Ala Trp Gln Asn Glu Gly Leu Pro Ala Asp	
1088 1093 1098 1103	
cgc atg tcc gtg gag aat gcc acc att ctc atc aac tgt gag cgc tgg	3539
Arg Met Ser Val Glu Asn Ala Thr Ile Leu Ile Asn Cys Glu Arg Trp	
1104 1109 1114 1119	
cca ctc atg gtt gac cct cag cta caa ggc atc aaa tgg atc aag aat	3587
Pro Leu Met Val Asp Pro Gln Leu Gln Gly Ile Lys Trp Ile Lys Asn	
1120 1125 1130 1135	
aaa tat ggt gaa gat ctc cgg gtc acg cag att ggt cag aaa ggc tac	3635
Lys Tyr Gly Glu Asp Leu Arg Val Thr Gln Ile Gly Gln Lys Gly Tyr	
1136 1141 1146 1151	
ctt caa atc ata gag cag gcc ctg gaa gct gga gct gtg gtg ctg att	3683
Leu Gln Ile Ile Glu Gln Ala Leu Glu Ala Gly Ala Val Val Leu Ile	
1152 1157 1162 1167	
gaa aat cta gag gag tcc att gat cct gtt ctg gga ccc ctg ctt ggg	3731
Glu Asn Leu Glu Glu Ser Ile Asp Pro Val Leu Gly Pro Leu Leu Gly	
1168 1173 1178 1183	
aga gaa gtc att aaa aaa gga cga ttc att aaa att gga gac aaa gaa	3779
Arg Glu Val Ile Lys Lys Gly Arg Phe Ile Lys Ile Gly Asp Lys Glu	
1184 1189 1194 1199	
tgt gaa tac aat ccc aag ttc cgg ctc atc ctc cac acc aag ctg gct	3827
Cys Glu Tyr Asn Pro Lys Phe Arg Leu Ile Leu His Thr Lys Leu Ala	
1200 1205 1210 1215	
aat cct cac tac cag cct gag ctg cag gct cag gcc acc ctg atc aac	3875
Asn Pro His Tyr Gln Pro Glu Leu Gln Ala Gln Ala Thr Leu Ile Asn	
1216 1221 1226 1231	
ttc acc gtg acc agg gat ggc ctg gag gac cag ttg ctg gcc gct gtg	3923
Phe Thr Val Thr Arg Asp Gly Leu Glu Asp Gln Leu Leu Ala Ala Val	
1232 1237 1242 1247	
gtc agc atg gag agg cca gac ttg gag cag ctg aag tcc gat ctc aca	3971
Val Ser Met Glu Arg Pro Asp Leu Glu Gln Leu Lys Ser Asp Leu Thr	
1248 1253 1258 1263	
aag cag cag aat gga ttc aaa att acc ctg aaa acg ctg gaa gac agt	4019
Lys Gln Gln Asn Gly Phe Lys Ile Thr Leu Lys Thr Leu Glu Asp Ser	
1264 1269 1274 1279	
ctt ctc tct cgc ctc tcc tcc gcc tct ggg aac ttc ctg gga gaa aca	4067
Leu Leu Ser Arg Leu Ser Ser Ala Ser Gly Asn Phe Leu Gly Glu Thr	

1280	1285	1290	1295	
gtg ctg gtg gaa aac cta gag atc acc aag cag act gct gcc gaa gtt				4115
Val Leu Val Glu Asn Leu Glu Ile Thr Lys Gln Thr Ala Ala Glu Val				
1296	1301	1306	1311	
gag aaa aag gtc cag gag gcc aag gtg act gaa gtg aaa atc aac gag				4163
Glu Lys Lys Val Gln Glu Ala Lys Val Thr Glu Val Lys Ile Asn Glu				
1312	1317	1322	1327	
gcc cga gag cac tac cgg cca gca gct gcc agg gcc tca ctg ctc tac				4211
Ala Arg Glu His Tyr Arg Pro Ala Ala Ala Arg Ala Ser Leu Leu Tyr				
1328	1333	1338	1343	
ttc atc atg aac gac ctc agc aag atc cat cca atg tac cag ttt tct				4259
Phe Ile Met Asn Asp Leu Ser Lys Ile His Pro Met Tyr Gln Phe Ser				
1344	1349	1354	1359	
ctc aag gcc ttc agt atc gtc ttc cag aag gct gtg gag agg gct gct				4307
Leu Lys Ala Phe Ser Ile Val Phe Gln Lys Ala Val Glu Arg Ala Ala				
1360	1365	1370	1375	
cct gac gaa agc ctc agg gag cgg gtg gcc aac cta ata gac agc ata				4355
Pro Asp Glu Ser Leu Arg Glu Arg Val Ala Asn Leu Ile Asp Ser Ile				
1376	1381	1386	1391	
acc ttc tct gtg tac cag tac acc atc cgc ggg ctc ttt gag tgt gat				4403
Thr Phe Ser Val Tyr Gln Tyr Thr Ile Arg Gly Leu Phe Glu Cys Asp				
1392	1397	1402	1407	
aag ctg acc tac ctt gcc cag ctc acc ttt cag att ctc ctc atg aac				4451
Lys Leu Thr Tyr Leu Ala Gln Leu Thr Phe Gln Ile Leu Leu Met Asn				
1408	1413	1418	1423	
cga gaa gtc aat gca gtg gag ttg gat ttc ctg ctt cga tct cca gtg				4499
Arg Glu Val Asn Ala Val Glu Leu Asp Phe Leu Leu Arg Ser Pro Val				
1424	1429	1434	1439	
cag acg ggc acc gcc agc ccc gtg gag ttc ctc tcc cat cag gcg tgg				4547
Gln Thr Gly Thr Ala Ser Pro Val Glu Phe Leu Ser His Gln Ala Trp				
1440	1445	1450	1455	
gga gct gtc aag gta ctt tca tca atg gaa gaa ttc tct aat ctg gat				4595
Gly Ala Val Lys Val Leu Ser Ser Met Glu Glu Phe Ser Asn Leu Asp				
1456	1461	1466	1471	
cgg gac ata gag gga tct gct aag agc tgg aaa aag ttt gtg gag tcc				4643
Arg Asp Ile Glu Gly Ser Ala Lys Ser Trp Lys Lys Phe Val Glu Ser				
1472	1477	1482	1487	
gaa tgt cct gag aaa gag aag ctc cca cag gag tgg aag aac aag aca				4691
Glu Cys Pro Glu Lys Glu Lys Leu Pro Gln Glu Trp Lys Asn Lys Thr				
1488	1493	1498	1503	
gcc ctg cag cgc ctc tgc atg ctg aga gcc atg cgg ccc gac cgg atg				4739
Ala Leu Gln Arg Leu Cys Met Leu Arg Ala Met Arg Pro Asp Arg Met				
1504	1509	1514	1519	

acc tat gct ttg cga gat ttt gtt gaa gag aag tta gga agc aaa tac	4787
Thr Tyr Ala Leu Arg Asp Phe Val Glu Glu Lys Leu Gly Ser Lys Tyr	
1520 1525 1530 1535	
gtg gtg gga aga gcc cta gat ttt gca acc tca ttt gaa gaa tcg gga	4835
Val Val Gly Arg Ala Leu Asp Phe Ala Thr Ser Phe Glu Glu Ser Gly	
1536 1541 1546 1551	
cca gcc act cct atg ttt ttc atc ctg tct cca ggg gtg gac cca ctg	4883
Pro Ala Thr Pro Met Phe Phe Ile Leu Ser Pro Gly Val Asp Pro Leu	
1552 1557 1562 1567	
aag gat gta gaa agt caa gga aga aaa ctt gga tac acc ttc aac aat	4931
Lys Asp Val Glu Ser Gln Gly Arg Lys Leu Gly Tyr Thr Phe Asn Asn	
1568 1573 1578 1583	
cag aac ttt cac aac gtg tct ttg ggg caa gga cag gaa gtg gtg gct	4979
Gln Asn Phe His Asn Val Ser Leu Gly Gln Gly Gln Glu Val Val Ala	
1584 1589 1594 1599	
gag gct gcg ctg gac ctc gct gcc aag aaa ggt cac tgg gtt att ttg	5027
Glu Ala Ala Leu Asp Leu Ala Ala Lys Lys Gly His Trp Val Ile Leu	
1600 1605 1610 1615	
cag aac act ctg gag atg tgt tct cgg gag acg gag ttt aag agc atc	5075
Gln Asn Thr Leu Glu Met Cys Ser Arg Glu Thr Glu Phe Lys Ser Ile	
1616 1621 1626 1631	
ctc ttt gct ctt tgt tac ttc cat gcg gtg gtg gca gaa aga cga aaa	5123
Leu Phe Ala Leu Cys Tyr Phe His Ala Val Val Ala Glu Arg Arg Lys	
1632 1637 1642 1647	
ttt ggg ccc cag gga tgg aat cgc tca tac ccc ttt aac act gga gac	5171
Phe Gly Pro Gln Gly Trp Asn Arg Ser Tyr Pro Phe Asn Thr Gly Asp	
1648 1653 1658 1663	
ctc act atc tct gtg aat gtc ctc tac aac ttc ctg gag gcc aac gca	5219
Leu Thr Ile Ser Val Asn Val Leu Tyr Asn Phe Leu Glu Ala Asn Ala	
1664 1669 1674 1679	
aag gtc ccc tat gat gat ttg cgc tac ctg ttt gga gag atc atg tat	5267
Lys Val Pro Tyr Asp Asp Leu Arg Tyr Leu Phe Gly Glu Ile Met Tyr	
1680 1685 1690 1695	
gga ggc cat atc aca gat gac tgg gac aga aga ctc tgc aga acc tac	5315
Gly Gly His Ile Thr Asp Asp Trp Asp Arg Arg Leu Cys Arg Thr Tyr	
1696 1701 1706 1711	
ctg ggg gaa ttc att cga cca gaa atg tta gaa gga gaa ctg tct ttg	5363
Leu Gly Glu Phe Ile Arg Pro Glu Met Leu Glu Gly Glu Leu Ser Leu	
1712 1717 1722 1727	
gcc cca ggg ttc cca ctc cca ggc aac atg gac tac aat ggt tat cat	5411
Ala Pro Gly Phe Pro Leu Pro Gly Asn Met Asp Tyr Asn Gly Tyr His	
1728 1733 1738 1743	

cag tac atc gat gct gag ctg ccc cca gaa tcc ccc tac ctc tat ggc	5459
Gln Tyr Ile Asp Ala Glu Leu Pro Pro Glu Ser Pro Tyr Leu Tyr Gly	
1744 1749 1754 1759	
ctc cac ccg aac gca gag att ggc ttc ctg acc caa acc tca gaa aag	5507
Leu His Pro Asn Ala Glu Ile Gly Phe Leu Thr Gln Thr Ser Glu Lys	
1760 1765 1770 1775	
ctc ttc cgc act gtg ctg gag ctg cag cct cgg gac agc cag gcc aga	5555
Leu Phe Arg Thr Val Leu Glu Leu Gln Pro Arg Asp Ser Gln Ala Arg	
1776 1781 1786 1791	
gac gga gcg ggc gcc aca aga gaa gaa aag gtc aag gca ctt ctg gaa	5603
Asp Gly Ala Gly Ala Thr Arg Glu Glu Lys Val Lys Ala Leu Leu Glu	
1792 1797 1802 1807	
gaa ata ttg gag cgg gtg aca gac gag ttt aac atc cca gaa ctg atg	5651
Glu Ile Leu Glu Arg Val Thr Asp Glu Phe Asn Ile Pro Glu Leu Met	
1808 1813 1818 1823	
gcc aaa gtg gag gag cgc acc cct tac att gta gtt gcc ttc cag gag	5699
Ala Lys Val Glu Glu Arg Thr Pro Tyr Ile Val Val Ala Phe Gln Glu	
1824 1829 1834 1839	
tgt ggc cgg atg aat atc ctc acc aga gag att cag cgc tca ctg agg	5747
Cys Gly Arg Met Asn Ile Leu Thr Arg Glu Ile Gln Arg Ser Leu Arg	
1840 1845 1850 1855	
gag ctg gag ctc ggc tta aag ggg gag ctg act atg acc agc cac atg	5795
Glu Leu Glu Leu Gly Leu Lys Gly Glu Leu Thr Met Thr Ser His Met	
1856 1861 1866 1871	
gag aac tta cag aat gcc ctg tac ttc gat atg gtg cca gag tcc tgg	5843
Glu Asn Leu Gln Asn Ala Leu Tyr Phe Asp Met Val Pro Glu Ser Trp	
1872 1877 1882 1887	
gct aga cga gcc tac cct tcc aca gca ggc ctg gca gcc tgg ttt cca	5891
Ala Arg Arg Ala Tyr Pro Ser Thr Ala Gly Leu Ala Ala Trp Phe Pro	
1888 1893 1898 1903	
gac ctc ctc aac aga atc aag gag cta gag gct tgg acg ggt gac ttt	5939
Asp Leu Leu Asn Arg Ile Lys Glu Leu Glu Ala Trp Thr Gly Asp Phe	
1904 1909 1914 1919	
aca atg ccc tcc act gtg tgg ctg aca ggc ttc ttc aac ccc cag tgc	5987
Thr Met Pro Ser Thr Val Trp Leu Thr Gly Phe Phe Asn Pro Gln Ser	
1920 1925 1930 1935	
ttc ctg act gcc atc atg cag tcc acg gct cgc aag aat gag tgg cca	6035
Phe Leu Thr Ala Ile Met Gln Ser Thr Ala Arg Lys Asn Glu Trp Pro	
1936 1941 1946 1951	
ctg gac cag atg gcc ctg caa tgt gac atg acg aag aag aac aga gaa	6083
Leu Asp Gln Met Ala Leu Gln Cys Asp Met Thr Lys Lys Asn Arg Glu	
1952 1957 1962 1967	
gag ttt agg agt cct cct cgg gaa ggg gcc tac atc cat ggc ctc ttc	6131

1968	Glu Phe Arg Ser Pro Pro Arg Glu Gly Ala Tyr Ile His Gly Leu Phe	1973	1978	1983	
atg gaa ggt gcc tgc tgg gac aca cag gct ggg atc att aca gag gca	Met Glu Gly Ala Cys Trp Asp Thr Gln Ala Gly Ile Ile Thr Glu Ala				6179
1984	1989	1994	1999		
aag ctg aag gat ctg aca ccc cct atg cct gtg atg ttc atc aag gcc	Lys Leu Lys Asp Leu Thr Pro Pro Met Pro Val Met Phe Ile Lys Ala				6227
2000	2005	2010	2015		
att cct gca gat aag cag gac tgc cgc agt gtc tat tcc tgt cct gtg	Ile Pro Ala Asp Lys Gln Asp Cys Arg Ser Val Tyr Ser Cys Pro Val				6275
2016	2021	2026	2031		
tac aag act agt cag cgg gga ccc acc tac gtg tgg act ttc aac ctg	Tyr Lys Thr Ser Gln Arg Gly Pro Thr Tyr Val Trp Thr Phe Asn Leu				6323
2032	2037	2042	2047		
aag act aag gaa aac cca tcc aag tgg gtt ctg gct gga gta gcc ttg	Lys Thr Lys Glu Asn Pro Ser Lys Trp Val Leu Ala Gly Val Ala Leu				6371
2048	2053	2058	2063		
ctt ctc cag att tag catcctgcag agccaccgag aaaataaaaa agctgggctt	Leu Leu Gln Ile *				6426
2064					
ggaggctgcc tagagggaca ggtgggtgaa gggtcaccac agacacttag aacggtaaga					6486
aaccatgagc actcacaatt ctgtagaatt cctctagggg acttgagagag gtgtgcctaa					6546
ggtgaggctg agctgaagga atgtggggccc aggtttcttta ataaaatgat ttactcttca					6606
actgtgtctg gccaggatt tgagagctgc tgaatcataa atgatcatgt agagaccaag					6666
agaaacaaac cacaagggcc ctgaccttgt tacacaacac tatcctaggt gctcttcttc					6726
caggctaccc cagcagtcct ttggaccagt ggtattggca tcacccatga accagaatct					6786
ccattttaac aatctctctg gaaaatctgt atgcacatta tagtttgaga aacactaccc					6846
tggagcaggg gtcaccaac					6865

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caacctgcct agacacactc agaaccaggt ttaagaagat cattcccatc ccagagcaga	180
gc atg gtt cag atg gtg tgt cac ctt ctg gaa tgt ctc ctg acc acg	227
Met Val Gln Met Val Cys His Leu Leu Glu Cys Leu Leu Thr Thr	
1 5 10	
gag gac atc cct gca gac tgc cct aag gaa att tat gag cat tat ttt	275
Glu Asp Ile Pro Ala Asp Cys Pro Lys Glu Ile Tyr Glu His Tyr Phe	
16 21 26 31	
gtg ttt gct gcc atc tgg gct ttc ggc gga gca atg gtc caa gat cag	323
Val Phe Ala Ala Ile Trp Ala Phe Gly Gly Ala Met Val Gln Asp Gln	
32 37 42 47	
ctt gtg gac tac cgg gca gag ttc agc aaa tgg tgg ctg act gag ttc	371
Leu Val Asp Tyr Arg Ala Glu Phe Ser Lys Trp Trp Leu Thr Glu Phe	
48 53 58 63	
aaa aca gtc aag ttt cct tcc caa gga acc atc ttt gac tat tac atc	419
Lys Thr Val Lys Phe Pro Ser Gln Gly Thr Ile Phe Asp Tyr Tyr Ile	
64 69 74 79	
gac cca gag acc aag aaa ttc gag cct tgg tcc aag ctc gtc ccc cag	467
Asp Pro Glu Thr Lys Lys Phe Glu Pro Trp Ser Lys Leu Val Pro Gln	
80 85 90 95	
ttc gaa ttt gac ccc gag atg ccc ttg cag gcg tgt ttg gtg cac acg	515
Phe Glu Phe Asp Pro Glu Met Pro Leu Gln Ala Cys Leu Val His Thr	
96 101 106 111	
agt gag acc atc cgt gtg tgc tac ttc atg gag cgg ttg atg gcg cgg	563
Ser Glu Thr Ile Arg Val Cys Tyr Phe Met Glu Arg Leu Met Ala Arg	
112 117 122 127	
cag cgg cct gtc atg ctg gtg ggc acg gct ggc act ggc aag tgc gtg	611
Gln Arg Pro Val Met Leu Val Gly Thr Ala Gly Thr Gly Lys Ser Val	
128 133 138 143	
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Leu Val Gly Ala Lys Leu Ala Ser Leu Asp Pro Glu Ala Tyr Leu Val	
144 149 154 159	
aaa aac gtg cca ttc aac tac tac acc acg tca gca atg ctg cag gct	707
Lys Asn Val Pro Phe Asn Tyr Tyr Thr Thr Ser Ala Met Leu Gln Ala	
160 165 170 175	
gtc ctg gag aag cct ctg gaa aag aag gct ggc aga aac tat ggc cct	755
Val Leu Glu Lys Pro Leu Glu Lys Lys Ala Gly Arg Asn Tyr Gly Pro	
176 181 186 191	
cca ggg aac aag aaa ctc atc tat ttc att gat gac atg aac atg cct	803
Pro Gly Asn Lys Lys Leu Ile Tyr Phe Ile Asp Asp Met Asn Met Pro	
192 197 202 207	

gag gtg gat gcc tac ggg acg gtg cag ccc cac acc atc atc cgg cag	851
Glu Val Asp Ala Tyr Gly Thr Val Gln Pro His Thr Ile Ile Arg Gln	
208 213 218 223	
cat ctg gac tat ggc cac tgg tat gat cgg agc aag ctg tcc cta aag	899
His Leu Asp Tyr Gly His Trp Tyr Asp Arg Ser Lys Leu Ser Leu Lys	
224 229 234 239	
gag atc aca aat gta cag tat gtt tcc tgt atg aac ccc acg gca ggc	947
Glu Ile Thr Asn Val Gln Tyr Val Ser Cys Met Asn Pro Thr Ala Gly	
240 245 250 255	
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Ser Phe Thr Ile Asn Pro Arg Leu Gln Arg His Phe Ser Val Phe Val	
256 261 266 271	
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Leu Ser Phe Pro Gly Ala Asp Ala Leu Ser Ser Ile Tyr Ser Ile Ile	
272 277 282 287	
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Leu Thr Gln His Leu Lys Leu Gly Asn Phe Pro Ala Ser Leu Gln Lys	
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Ser Ile Pro Pro Leu Ile Asp Leu Ala Leu Ala Phe His Gln Lys Ile	
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gct acc acc ttc cta ccc aca gga atc aaa ttc cac tac atc ttc aac	1187
Ala Thr Thr Phe Leu Pro Thr Gly Ile Lys Phe His Tyr Ile Phe Asn	
320 325 330 335	
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Leu Arg Asp Phe Ala Asn Ile Phe Gln Gly Ile Leu Phe Ser Ser Val	
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Glu Cys Val Lys Ser Thr Trp Asp Leu Ile Arg Leu Tyr Leu His Glu	
352 357 362 367	
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Ser Asn Arg Val Tyr Arg Asp Lys Met Val Glu Glu Lys Asp Phe Asp	
368 373 378 383	
ctt ttt gat aaa atc cag aca gaa gtg ctc aag aaa act ttt gat gat	1379
Leu Phe Asp Lys Ile Gln Thr Glu Val Leu Lys Lys Thr Phe Asp Asp	
384 389 394 399	
att gaa gac cct gtg gag cag acc caa agc ccg aac ctg tat tgt cac	1427
Ile Glu Asp Pro Val Glu Gln Thr Gln Ser Pro Asn Leu Tyr Cys His	
400 405 410 415	
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Phe Ala Asn Gly Ile Gly Glu Pro Lys Tyr Met Pro Val Gln Ser Trp	
416 421 426 431	
gaa ctt ttg acc cag act ctg gtg gag gcc ttg gag aac cac aat gaa	1523

Glu	Leu	Leu	Thr	Gln	Thr	Leu	Val	Glu	Ala	Leu	Glu	Asn	His	Asn	Glu	
432					437					442					447	
gtc	aac	aca	gtg	atg	gac	cta	gtt	ctc	ttt	gag	gat	gcc	atg	cgc	cat	1571
Val	Asn	Thr	Val	Met	Asp	Leu	Val	Leu	Phe	Glu	Asp	Ala	Met	Arg	His	
448					453					458					463	
gtc	tgc	cat	atc	aat	cgc	atc	ttg	gag	tcc	ccg	cgg	gga	aat	gct	ctg	1619
Val	Cys	His	Ile	Asn	Arg	Ile	Leu	Glu	Ser	Pro	Arg	Gly	Asn	Ala	Leu	
464					469					474					479	
ctg	gtt	ggt	gta	ggt	ggg	agc	ggc	aag	cag	agc	ctg	aca	agg	ctg	gca	1667
Leu	Val	Gly	Val	Gly	Gly	Ser	Gly	Lys	Gln	Ser	Leu	Thr	Arg	Leu	Ala	
480					485					490					495	
gct	ttc	atc	agc	tcc	atg	gat	gtc	ttc	cag	atc	aca	ctg	cgc	aaa	ggc	1715
Ala	Phe	Ile	Ser	Ser	Met	Asp	Val	Phe	Gln	Ile	Thr	Leu	Arg	Lys	Gly	
496					501					506					511	
tac	cag	atc	cag	gac	ttc	aag	atg	gac	ctg	gcc	agc	ctg	tgt	ctg	aaa	1763
Tyr	Gln	Ile	Gln	Asp	Phe	Lys	Met	Asp	Leu	Ala	Ser	Leu	Cys	Leu	Lys	
512					517					522					527	
gct	gga	gtg	aag	aat	ctc	aac	aca	gtg	ttt	ctc	atg	act	gat	gcc	caa	1811
Ala	Gly	Val	Lys	Asn	Leu	Asn	Thr	Val	Phe	Leu	Met	Thr	Asp	Ala	Gln	
528					533					538					543	
gtg	gct	gat	gag	agg	ttc	ctt	gtg	ctc	atc	aat	gat	ctt	ttg	gca	tct	1859
Val	Ala	Asp	Glu	Arg	Phe	Leu	Val	Leu	Ile	Asn	Asp	Leu	Leu	Ala	Ser	
544					549					554					559	
ggg	gag	atc	cca	gat	ctc	tac	tct	gat	gat	gaa	gtt	gaa	aac	atc	ata	1907
Gly	Glu	Ile	Pro	Asp	Leu	Tyr	Ser	Asp	Asp	Glu	Val	Glu	Asn	Ile	Ile	
560					565					570					575	
agc	aat	gtg	agg	aat	gaa	gtc	aag	agc	cag	ggt	ctg	gtt	gac	aac	aga	1955
Ser	Asn	Val	Arg	Asn	Glu	Val	Lys	Ser	Gln	Gly	Leu	Val	Asp	Asn	Arg	
576					581					586					591	
gag	aac	tgt	tgg	aag	ttc	ttt	ata	gat	cgg	atc	cgg	cga	cag	ctg	aag	2003
Glu	Asn	Cys	Trp	Lys	Phe	Phe	Ile	Asp	Arg	Ile	Arg	Arg	Gln	Leu	Lys	
592					597					602					607	
gtg	act	ctc	tgt	ttc	tcc	cct	gtg	gga	aac	aag	cta	aga	gtc	cgc	agc	2051
Val	Thr	Leu	Cys	Phe	Ser	Pro	Val	Gly	Asn	Lys	Leu	Arg	Val	Arg	Ser	
608					613					618					623	
agg	aag	ttc	cca	gcc	att	gtg	aac	tgc	aca	gcc	atc	cac	tgg	ttc	cac	2099
Arg	Lys	Phe	Pro	Ala	Ile	Val	Asn	Cys	Thr	Ala	Ile	His	Trp	Phe	His	
624					629					634					639	
gag	tgg	cct	cag	caa	gca	ttg	gag	tct	gtc	agc	ctc	cgc	ttc	ttg	cag	2147
Glu	Trp	Pro	Gln	Gln	Ala	Leu	Glu	Ser	Val	Ser	Leu	Arg	Phe	Leu	Gln	
640					645					650					655	
aac	aca	gag	ggc	att	gag	ccc	aca	gta	aag	cag	tcg	att	agc	aaa	ttc	2195
Asn	Thr	Glu	Gly	Ile	Glu	Pro	Thr	Val	Lys	Gln	Ser	Ile	Ser	Lys	Phe	

656	661	666	671	
atg gcc ttt gtc cac	aca agt gtc aac caa	aca tcc cag tct tat	ctg	2243
Met Ala Phe Val His	Thr Ser Val Asn Gln	Thr Ser Gln Ser Tyr	Leu	
672	677	682	687	
agc aat gaa cag cgc	tac aac tat aca act	ccc aag tcc ttt ctg	gag	2291
Ser Asn Glu Gln Arg	Tyr Asn Tyr Thr Thr	Pro Lys Ser Phe Leu	Glu	
688	693	698	703	
ttc atc aga ctc tac	cag agc ttg ttg cac	agg cac aga aaa gag	ctc	2339
Phe Ile Arg Leu Tyr	Gln Ser Leu Leu His	Arg His Arg Lys Glu	Leu	
704	709	714	719	
aag tgc aag aca gag	cgg ttg gag aac ggg	ctg ctg aag ctg cat	agc	2387
Lys Cys Lys Thr Glu	Arg Leu Glu Asn Gly	Leu Leu Lys Leu His	Ser	
720	725	730	735	
acc tct gcc cag gtg	gat gat ctg aaa gca	aag ctg gct gcc cag	gaa	2435
Thr Ser Ala Gln Val	Asp Asp Leu Lys Ala	Lys Leu Ala Ala Gln	Glu	
736	741	746	751	
gta gag ctg aag cag	aaa aat gaa gat gca	gac aaa ctg att cag	gtc	2483
Val Glu Leu Lys Gln	Lys Asn Glu Asp Ala	Asp Lys Leu Ile Gln	Val	
752	757	762	767	
gtg ggt gtg gag act	gac aaa gtg agc aga	gag aaa gcc atg gca	gat	2531
Val Gly Val Glu Thr	Asp Lys Val Ser Arg	Glu Lys Ala Met Ala	Asp	
768	773	778	783	
gaa gag gag cag aag	gtg gcc gtc atc atg	cta gag gtg aaa cag	aag	2579
Glu Glu Glu Gln Lys	Val Ala Val Ile Met	Leu Glu Val Lys Gln	Lys	
784	789	794	799	
cag aag gac tgt gag	gag gac ctg gca aag	gct gag cca gca ctc	aca	2627
Gln Lys Asp Cys Glu	Glu Asp Leu Ala Lys	Ala Glu Pro Ala Leu	Thr	
800	805	810	815	
gca gcg cag gca gct	ctc aac acc ctg aac	aag acc aac ctg aca	gag	2675
Ala Ala Gln Ala Ala	Leu Asn Thr Leu Asn	Lys Thr Asn Leu Thr	Glu	
816	821	826	831	
ctg aag tca ttt ggc	tct ccg cct ctg gcc	gtc agc aat gtc agc	gct	2723
Leu Lys Ser Phe Gly	Ser Pro Pro Leu Ala	Val Ser Asn Val Ser	Ala	
832	837	842	847	
gcg gtg atg gta ctg	atg gct ccc agg ggt	agg gtg ccc aag gac	cgg	2771
Ala Val Met Val Leu	Met Ala Pro Arg Gly	Arg Val Pro Lys Asp	Arg	
848	853	858	863	
agc tgg aag gct gct	aag gtc acc atg gcc	aaa gtg gat ggc ttc	ctg	2819
Ser Trp Lys Ala Ala	Lys Val Thr Met Ala	Lys Val Asp Gly Phe	Leu	
864	869	874	879	
gac tcg cta ata aac	ttc aac aaa gag aac	att cac gag aac tgc	ctc	2867
Asp Ser Leu Ile Asn	Phe Asn Lys Glu Asn	Ile His Glu Asn Cys	Leu	
880	885	890	895	

aaa gcc atc agg ccg tat ctg caa gac ccg gag ttc aat cct gag ttt	2915
Lys Ala Ile Arg Pro Tyr Leu Gln Asp Pro Glu Phe Asn Pro Glu Phe	
896 901 906 911	
gtg gcc acc aaa tcc tat gcg gct gca ggc ctc tgc tcc tgg gtc atc	2963
Val Ala Thr Lys Ser Tyr Ala Ala Ala Gly Leu Cys Ser Trp Val Ile	
912 917 922 927	
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Asn Ile Val Arg Phe Tyr Glu Val Phe Cys Asp Val Glu Pro Lys Arg	
928 933 938 943	
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Gln Ala Leu Asn Lys Ala Thr Ala Asp Leu Thr Ala Ala Gln Glu Lys	
944 949 954 959	
ctg gct gcc atc aaa gcc aag atc gct cac ctt aat gaa aac ctg gca	3107
Leu Ala Ala Ile Lys Ala Lys Ile Ala His Leu Asn Glu Asn Leu Ala	
960 965 970 975	
aag ctc aca gcc agg ttt gag aaa gca aca gca gac aaa ctc aaa tgt	3155
Lys Leu Thr Ala Arg Phe Glu Lys Ala Thr Ala Asp Lys Leu Lys Cys	
976 981 986 991	
cag caa gaa gcc gaa gtg acc gca gtc acc atc tcc ctt gcc aac cgc	3203
Gln Gln Glu Ala Glu Val Thr Ala Val Thr Ile Ser Leu Ala Asn Arg	
992 997 1002 1007	
ctg gtt gga gga ctc gct tct gaa aac gtg agg tgg gca gat gcc gtg	3251
Leu Val Gly Gly Leu Ala Ser Glu Asn Val Arg Trp Ala Asp Ala Val	
1008 1013 1018 1023	
cag aac ttc aaa cag cag gaa agg acg tta tgt gga gac att tta ctt	3299
Gln Asn Phe Lys Gln Gln Glu Arg Thr Leu Cys Gly Asp Ile Leu Leu	
1024 1029 1034 1039	
ata acg gct ttc att tcc tac ctt ggc ttc ttc aca aag aaa tac cgg	3347
Ile Thr Ala Phe Ile Ser Tyr Leu Gly Phe Phe Thr Lys Lys Tyr Arg	
1040 1045 1050 1055	
cag agc ctc ctg gac aga act tgg agg ccc tac ctg agc cag ctg aaa	3395
Gln Ser Leu Leu Asp Arg Thr Trp Arg Pro Tyr Leu Ser Gln Leu Lys	
1056 1061 1066 1071	
act ccc att cca gtc acc cca gcc ctg gat ccc ctg agg atg ctg atg	3443
Thr Pro Ile Pro Val Thr Pro Ala Leu Asp Pro Leu Arg Met Leu Met	
1072 1077 1082 1087	
gat gat gct gac gtg gct gcc tgg cag aac gag ggc ctc cca gcc gac	3491
Asp Asp Ala Asp Val Ala Ala Trp Gln Asn Glu Gly Leu Pro Ala Asp	
1088 1093 1098 1103	
cgc atg tcc gtg gag aat gcc acc att ctc atc aac tgt gag cgc tgg	3539
Arg Met Ser Val Glu Asn Ala Thr Ile Leu Ile Asn Cys Glu Arg Trp	
1104 1109 1114 1119	

cca ctc atg gtt gac cct cag cta caa ggc atc aaa tgg atc aag aat	3587
Pro Leu Met Val Asp Pro Gln Leu Gln Gly Ile Lys Trp Ile Lys Asn	
1120 1125 1130 1135	
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Lys Tyr Gly Glu Asp Leu Arg Val Thr Gln Ile Gly Gln Lys Gly Tyr	
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Glu Asn Leu Glu Glu Ser Ile Asp Pro Val Leu Gly Pro Leu Leu Gly	
1168 1173 1178 1183	
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Arg Glu Val Ile Lys Lys Gly Arg Phe Ile Lys Ile Gly Asp Lys Glu	
1184 1189 1194 1199	
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Cys Glu Tyr Asn Pro Lys Phe Arg Leu Ile Leu His Thr Lys Leu Ala	
1200 1205 1210 1215	
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Asn Pro His Tyr Gln Pro Glu Leu Gln Ala Gln Ala Thr Leu Ile Asn	
1216 1221 1226 1231	
ttc acc gtg acc agg gat ggc ctg gag gac cag ttg ctg gcc gct gtg	3923
Phe Thr Val Thr Arg Asp Gly Leu Glu Asp Gln Leu Leu Ala Ala Val	
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Val Ser Met Glu Arg Pro Asp Leu Glu Gln Leu Lys Ser Asp Leu Thr	
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Val Leu Val Glu Asn Leu Glu Ile Thr Lys Gln Thr Ala Ala Glu Val	
1296 1301 1306 1311	
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gcc cga gag cac tac cgg cca gca gct gcc agg gcc tca ctg ctc tac	4211
Ala Arg Glu His Tyr Arg Pro Ala Ala Ala Arg Ala Ser Leu Leu Tyr	
1328 1333 1338 1343	
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Phe Ile Met Asn Asp Leu Ser Lys Ile His Pro Met Tyr Gln Phe Ser	
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Leu Lys Ala Phe Ser Ile Val Phe Gln Lys Ala Val Glu Arg Ala Ala	
1360 1365 1370 1375	
cct gac gaa agc ctc agg gag cgg gtg gcc aac cta ata gac agc ata	4355
Pro Asp Glu Ser Leu Arg Glu Arg Val Ala Asn Leu Ile Asp Ser Ile	
1376 1381 1386 1391	
acc ttc tct gtg tac cag tac acc atc cgc ggg ctc ttt gag tgt gat	4403
Thr Phe Ser Val Tyr Gln Tyr Thr Ile Arg Gly Leu Phe Glu Cys Asp	
1392 1397 1402 1407	
aag ctg acc tac ctt gcc cag ctc acc ttt cag att ctc ctc atg aac	4451
Lys Leu Thr Tyr Leu Ala Gln Leu Thr Phe Gln Ile Leu Leu Met Asn	
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Arg Glu Val Asn Ala Val Glu Leu Asp Phe Leu Leu Arg Ser Pro Val	
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Gln Thr Gly Thr Ala Ser Pro Val Glu Phe Leu Ser His Gln Ala Trp	
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Glu Cys Pro Glu Lys Glu Lys Leu Pro Gln Glu Trp Lys Asn Lys Thr	
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Ala Leu Gln Arg Leu Cys Met Leu Arg Ala Met Arg Pro Asp Arg Met	
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Val Val Gly Arg Ala Leu Asp Phe Ala Thr Ser Phe Glu Glu Ser Gly	
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cca gcc act cct atg ttt ttc atc ctg tct cca ggg gtg gac cca ctg	4883
Pro Ala Thr Pro Met Phe Phe Ile Leu Ser Pro Gly Val Asp Pro Leu	
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Lys Asp Val Glu Ser Gln Gly Arg Lys Leu Gly Tyr Thr Phe Asn Asn	

1568	1573	1578	1583	
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Gln Asn Phe His Asn Val Ser Leu Gly Gln Gly Gln Glu Val Val Ala				
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Glu Ala Ala Leu Asp Leu Ala Ala Lys Lys Gly His Trp Val Ile Leu				
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Gln Asn Ile His Leu Val Ala Lys Trp Leu Ser Thr Leu Glu Lys Lys				
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Leu Glu Glu His Ser Glu Asn Ser His Pro Glu Phe Arg Val Phe Met				
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Ser Ala Glu Pro Ala Pro Ser Pro Glu Gly His Ile Ile Pro Gln Gly				
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Ile Leu Glu Asn Ser Ile Lys Ile Thr Asn Glu Pro Pro Thr Gly Met				
1664	1669	1674	1679	
cat gcc aac ctg cac aag gcc ctg gac aac ttc act cag gac act ctg				5267
His Ala Asn Leu His Lys Ala Leu Asp Asn Phe Thr Gln Asp Thr Leu				
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gag atg tgt tct cgg gag acg gag ttt aag agc atc ctc ttt gct ctt				5315
Glu Met Cys Ser Arg Glu Thr Glu Phe Lys Ser Ile Leu Phe Ala Leu				
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Cys Tyr Phe His Ala Val Val Ala Glu Arg Arg Lys Phe Gly Pro Gln				
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Gly Trp Asn Arg Ser Tyr Pro Phe Asn Thr Gly Asp Leu Thr Ile Ser				
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Val Asn Val Leu Tyr Asn Phe Leu Glu Ala Asn Ala Lys Val Pro Tyr				
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Asp Asp Leu Arg Tyr Leu Phe Gly Glu Ile Met Tyr Gly Gly His Ile				
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Thr Asp Asp Trp Asp Arg Arg Leu Cys Arg Thr Tyr Leu Gly Glu Phe				
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Ile Arg Pro Glu Met Leu Glu Gly Glu Leu Ser Leu Ala Pro Gly Phe				
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Pro Leu Pro Gly Asn Met Asp Tyr Asn Gly Tyr His Gln Tyr Ile Asp	
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Ala Glu Leu Pro Pro Glu Ser Pro Tyr Leu Tyr Gly Leu His Pro Asn	
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Ala Glu Ile Gly Phe Leu Thr Gln Thr Ser Glu Lys Leu Phe Arg Thr	
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Val Leu Glu Leu Gln Pro Arg Asp Ser Gln Ala Arg Asp Gly Ala Gly	
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Ala Thr Arg Glu Glu Lys Val Lys Ala Leu Leu Glu Glu Ile Leu Glu	
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Arg Val Thr Asp Glu Phe Asn Ile Pro Glu Leu Met Ala Lys Val Glu	
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Asn Ile Leu Thr Arg Glu Ile Gln Arg Ser Leu Arg Glu Leu Glu Leu	
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Tyr Pro Ser Thr Ala Gly Leu Ala Ala Trp Phe Pro Asp Leu Leu Asn	
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Pro Pro Arg Glu Gly Ala Tyr Ile His Gly Leu Phe Met Glu Gly Ala  
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Cys Trp Asp Thr Gln Ala Gly Ile Ile Thr Glu Ala Lys Leu Lys Asp  
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Phe Arg Pro Leu Asn Glu Ser Glu Val Asn Arg Gly Asp Lys Tyr Ile	
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Ala Phe Asp Arg Val Phe Gln Ser Ser Thr Ser Gln Glu Gln Val Tyr	
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63 68 73 78	
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Ile Val Gln Asp Ile Phe Asn Tyr Ile Tyr Ser Met Asp Glu Asn Leu	
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Glu Phe His Ile Lys Val Ser Tyr Phe Glu Ile Tyr Leu Asp Lys Ile	
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Ser Pro Asp Glu Val Met Asp Thr Ile Asp Glu Gly Lys Ser Asn Arg	
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His Val Ala Val Thr Asn Met Asn Glu His Ser Ser Arg Ser His Ser	
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Ser Lys Thr Gly Ala Glu Gly Ala Val Leu Asp Glu Ala Lys Asn Ile	
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319 324 329 334	
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Leu Thr Ala Glu Gln Trp Lys Lys Lys Tyr Glu Lys Glu Lys Glu Lys	
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Arg Trp Arg Asn Gly Glu Thr Val Pro Ile Asp Glu Gln Phe Asp Lys	
367 372 377 382	

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acc aat gat aaa cca	gca acc gca att gga	gtt ata gga aat ttt act	1669
Thr Asn Asp Lys Pro	Ala Thr Ala Ile Gly	Val Ile Gly Asn Phe Thr	
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Asp Ala Glu Arg Arg	Lys Cys Glu Glu Glu	Ile Ala Lys Leu Tyr Lys	
415	420	425	430
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Gln Leu Asp Asp Lys	Asp Glu Glu Ile Asn	Gln Gln Ser Gln Leu Val	
431	436	441	446
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Glu Lys Leu Lys Thr	Gln Met Leu Asp Gln	Glu Glu Leu Leu Ala Ser	
447	452	457	462
acc aga agg gat caa	gac aat atg caa gct	gag ctg aat cgc ctt caa	1861
Thr Arg Arg Asp Gln	Asp Asn Met Gln Ala	Glu Leu Asn Arg Leu Gln	
463	468	473	478
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Ala Glu Asn Asp Ala	Ser Lys Glu Glu Val	Lys Glu Val Leu Gln Ala	
479	484	489	494
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Leu Glu Glu Leu Ala	Val Asn Tyr Asp Gln	Lys Ser Gln Glu Val Glu	
495	500	505	510
gac aaa act aag gaa	tat gaa ttg ctt agt	gat gaa ttg aat cag aaa	2005
Asp Lys Thr Lys Glu	Tyr Glu Leu Leu Ser	Asp Glu Leu Asn Gln Lys	
511	516	521	526
tcg gca act tta gcg	agt ata gat gct gag	ctt cag aaa ctt aag gaa	2053
Ser Ala Thr Leu Ala	Ser Ile Asp Ala Glu	Leu Gln Lys Leu Lys Glu	
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Met Thr Asn His Gln	Lys Lys Arg Ala Ala	Glu Met Met Ala Ser Leu	
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aga ctc tac att agc	aaa atg aag tca gaa	gta aaa acc atg gtg aaa	2245
Arg Leu Tyr Ile Ser	Lys Met Lys Ser Glu	Val Lys Thr Met Val Lys	
591	596	601	606
cgt tgc aag cag tta	gaa agc aca caa act	gag agc aac aaa aaa atg	2293

Arg Cys Lys Gln Leu Glu Ser Thr Gln Thr Glu Ser Asn Lys Lys Met	
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Glu Glu Asn Glu Lys Glu Leu Ala Ala Cys Gln Leu Arg Ile Ser Gln	
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Gln Lys Lys Arg Gln Leu Glu Glu Ser Val Asp Ala Leu Ser Glu Glu	
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847					852					857					862					
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Arg Ser Pro Gly Pro	Pro Ala Leu Lys His Pro	Ala Thr Lys Asp Leu		
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Ala Ala Ala Ala Ala	Gln Gly Pro Gln Leu Pro	Pro Pro Gln Ala Gln		
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Pro Gln Pro Ser Gly	Thr Gly Gly Gly Val Ser	Gly Gln Asp Arg Tyr		
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Asp Arg Ala Thr Ser	Ser Gly Arg Leu Pro Leu	Pro Ser Pro Ala Leu		
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Glu Tyr Thr Leu Gly	Ser Arg Leu Ala Asn Gly	Leu Gly Arg Glu Glu		
129	134	139	144	
gcc gtg gct gag ggg	gcg cga agg gcc ttg ctt	ggc tcc atg cct ggc		480
Ala Val Ala Glu Gly	Ala Arg Arg Ala Leu Leu	Gly Ser Met Pro Gly		
145	150	155	160	
ttg atg ccc cct ggg	ctg ctg gca gct gca gtg	tct ggc ctg gga agc		528
Leu Met Pro Pro Gly	Leu Leu Ala Ala Ala Val	Ser Gly Leu Gly Ser		
161	166	171	176	
cga ggc ctg acg ctg	gca ccc ggc ttg agt cct	gcc cgt ccc ctc ttc		576
Arg Gly Leu Thr Leu	Ala Pro Gly Leu Ser Pro	Ala Arg Pro Leu Phe		
177	182	187	192	
ggc tcc gat ttc gag	aaa gag aag cag cag agg	aat gcg gac tgt ctg		624
Gly Ser Asp Phe Glu	Lys Glu Lys Gln Gln Arg	Asn Ala Asp Cys Leu		
193	198	203	208	
gca gaa ctg aac gag	gcc atg cga ggc cgg gca	gag gaa tgg cac ggg		672
Ala Glu Leu Asn Glu	Ala Met Arg Gly Arg Ala	Glu Glu Trp His Gly		
209	214	219	224	
cgc ccc aaa gca gtg	cgg gaa cag cta ctg gcg	ctg tcc gcc tgc gcc		720
Arg Pro Lys Ala Val	Arg Glu Gln Leu Leu Ala	Leu Ser Ala Cys Ala		
225	230	235	240	
ccg ttc aat gtg cgc	ttc aag aag gat cac ggg	ctg gtg ggg cga gtg		768
Pro Phe Asn Val Arg	Phe Lys Lys Asp His Gly	Leu Val Gly Arg Val		
241	246	251	256	

ttc gcc ttc gat gct act gcc cgt cct cca gga tac gag ttc gag ctg	816
Phe Ala Phe Asp Ala Thr Ala Arg Pro Pro Gly Tyr Glu Phe Glu Leu	
257 262 267 272	
aag ctc ttc acc gaa tac ccc tgt ggt tcc ggc aat gtg tac gcc ggc	864
Lys Leu Phe Thr Glu Tyr Pro Cys Gly Ser Gly Asn Val Tyr Ala Gly	
273 278 283 288	
gtc ctg gca gtg gct cgc cag atg ttc cac gat gct ctg cgg gag ccg	912
Val Leu Ala Val Ala Arg Gln Met Phe His Asp Ala Leu Arg Glu Pro	
289 294 299 304	
ggc aag gca ctg gct tct tcg ggc ttc aag tac ctc gaa tat gaa cgc	960
Gly Lys Ala Leu Ala Ser Ser Gly Phe Lys Tyr Leu Glu Tyr Glu Arg	
305 310 315 320	
cgg cat gga tca gga gaa tgg cgg cag ctg ggc gag ctg ctt acc gac	1008
Arg His Gly Ser Gly Glu Trp Arg Gln Leu Gly Glu Leu Leu Thr Asp	
321 326 331 336	
ggc gtc cgc agc ttc cgc gag cca gct ccc gcg gag gcc ctg ccc cag	1056
Gly Val Arg Ser Phe Arg Glu Pro Ala Pro Ala Glu Ala Leu Pro Gln	
337 342 347 352	
cag tac cca gag ccg gcc cct gcg gct ctc tgt ggc cca ccc ccg cga	1104
Gln Tyr Pro Glu Pro Ala Pro Ala Ala Leu Cys Gly Pro Pro Pro Arg	
353 358 363 368	
gcc cca tcc cgg aac ctg gcg ccc acg ccg cgc cgt cgc aag gca tcc	1152
Ala Pro Ser Arg Asn Leu Ala Pro Thr Pro Arg Arg Arg Lys Ala Ser	
369 374 379 384	
ccc gag ccg gag ggc gag gcg gct ggg aag atg acc acc gag gag cag	1200
Pro Glu Pro Glu Gly Glu Ala Ala Gly Lys Met Thr Thr Glu Glu Gln	
385 390 395 400	
cag caa cgg cac tgg gtg gca ccc ggc ggc ccg tac tcc gct gag acc	1248
Gln Gln Arg His Trp Val Ala Pro Gly Gly Pro Tyr Ser Ala Glu Thr	
401 406 411 416	
cct ggt gtg ccc tcg ccc att gcc gcc ctg aag aat gtg gcc gaa gcc	1296
Pro Gly Val Pro Ser Pro Ile Ala Ala Leu Lys Asn Val Ala Glu Ala	
417 422 427 432	
ctg ggc cac tca ccc aag gac cct ggc gga ggc ggg ggg cct gtg cgt	1344
Leu Gly His Ser Pro Lys Asp Pro Gly Gly Gly Gly Gly Pro Val Arg	
433 438 443 448	
gca ggg ggc gcc agc cct gca gcc tcc tcc acg gcc cag ccg cca acc	1392
Ala Gly Gly Ala Ser Pro Ala Ala Ser Ser Thr Ala Gln Pro Pro Thr	
449 454 459 464	
cag cat cgc ctt gtg gcc cgc aac ggc gaa gca gaa gtc agt ccc aca	1440
Gln His Arg Leu Val Ala Arg Asn Gly Glu Ala Glu Val Ser Pro Thr	
465 470 475 480	

gcg ggg gcc gaa gct gtc agc ggg ggt ggc agc ggc act ggg gcg acc	1488
Ala Gly Ala Glu Ala Val Ser Gly Gly Gly Ser Gly Thr Gly Ala Thr	
481 486 491 496	
cct ggg gcc ccc ctg tgc tgt acc ctg tgc agg gag cgg cta gaa gac	1536
Pro Gly Ala Pro Leu Cys Cys Thr Leu Cys Arg Glu Arg Leu Glu Asp	
497 502 507 512	
acc cac ttc gtc cag tgc ccc tcg gtg ccc gga cac aag ttc tgc ttt	1584
Thr His Phe Val Gln Cys Pro Ser Val Pro Gly His Lys Phe Cys Phe	
513 518 523 528	
ccc tgc tcc cgg gag ttc atc aag gcg cag ggc ccg gcc ggg gag gtg	1632
Pro Cys Ser Arg Glu Phe Ile Lys Ala Gln Gly Pro Ala Gly Glu Val	
529 534 539 544	
tac tgc ccg agc gga gac aag tgc ccg ctg gtc ggc tcc tcc gtg ccc	1680
Tyr Cys Pro Ser Gly Asp Lys Cys Pro Leu Val Gly Ser Ser Val Pro	
545 550 555 560	
tgg gcc ttc atg cag ggc gag atc gcc acc atc ctt gct gga gac atc	1728
Trp Ala Phe Met Gln Gly Glu Ile Ala Thr Ile Leu Ala Gly Asp Ile	
561 566 571 576	
aaa gtt aag aaa gaa cgg gac ccc tag gctac cactgectcc aggctactgc	1780
Lys Val Lys Lys Glu Arg Asp Pro *	
577 582	
cctctgcccc tttgccaccc accgctgcgg cggataaatt attccctccc cgaccagcc	1840
cagtgccacc totatctgtg tacatactcc cttcttccac ccagatgggt cccctgggggt	1900
agatgcattg tgggtggggg gagaaagctt gtggctcctg tccgaggggg tgtttgggggt	1960
cccttgcccc ctccagtttc cctctgtcct ccttggttg gctttgctgc tgctttagt	2020
tgggggagag gtgccccct cctccttgag aaggacctc ctgaaaactc gctctttata	2080
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acatcggttca agtgactggt ccagataatg agaaggaaag attatcaagc attgaaaaga	180
ttaaacagct aagagaacaa gttaatgacc tctttagccg aaaatttggt gaagcaattg	240
gcgtggattt ccctgtgaaa gttccctaca ggaagatcac attcaaccct ggctgtgtgg	300
tgattgatgg c atg ccc ccg ggg gtg gta ttc aag gcc ccc ggc tat ctg	350
Met Pro Pro Gly Val Val Phe Lys Ala Pro Gly Tyr Leu	
1 5 10	
gaa atc agt tcc atg agg agg atc ttg gag gca gct gag ttt atc aaa	398
Glu Ile Ser Ser Met Arg Arg Ile Leu Glu Ala Ala Glu Phe Ile Lys	
14 19 24 29	
ttc aca gtc atc agg ccg ctt cca ggg ctt gag ctc agt aat ggt gag	446
Phe Thr Val Ile Arg Pro Leu Pro Gly Leu Glu Leu Ser Asn Gly Glu	
30 35 40 45	
tat tct aca gtg gga aaa cgc aag ata gac cag gag ggc cgt gtg ttt	494
Tyr Ser Thr Val Gly Lys Arg Lys Ile Asp Gln Glu Gly Arg Val Phe	
46 51 56 61	
caa gaa aag tgg gag aga gcg tat ttc ttc gtg gaa gta cag aat att	542
Gln Glu Lys Trp Glu Arg Ala Tyr Phe Phe Val Glu Val Gln Asn Ile	
62 67 72 77	
cca aca tgt ctc ata tgc aaa caa agc atg tct gtg tcc aaa gaa tat	590
Pro Thr Cys Leu Ile Cys Lys Gln Ser Met Ser Val Ser Lys Glu Tyr	
78 83 88 93	
aac cta aga cgc cac tat caa acc aat cac agc aag cat tat gac cag	638
Asn Leu Arg Arg His Tyr Gln Thr Asn His Ser Lys His Tyr Asp Gln	
94 99 104 109	
tat atg gaa aga atg cgt gac gag aag ctt cac gag ctg aaa aaa ggg	686
Tyr Met Glu Arg Met Arg Asp Glu Lys Leu His Glu Leu Lys Lys Gly	
110 115 120 125	
ctc agg aag tat ctc tta ggc tcg tca gac acc gag tgt ccc gag caa	734
Leu Arg Lys Tyr Leu Leu Gly Ser Ser Asp Thr Glu Cys Pro Glu Gln	
126 131 136 141	
aaa caa gtg ttt gca aac cca agt cca acc cag aaa tcc ccc gtg cag	782
Lys Gln Val Phe Ala Asn Pro Ser Pro Thr Gln Lys Ser Pro Val Gln	
142 147 152 157	
cct gta gag gac cta gct ggg aac tta tgg gag aag tta cgt gaa aaa	830
Pro Val Glu Asp Leu Ala Gly Asn Leu Trp Glu Lys Leu Arg Glu Lys	
158 163 168 173	
atc agg tct ttt gtg gca tat tct atc gca atc gat gag atc acg gat	878
Ile Arg Ser Phe Val Ala Tyr Ser Ile Ala Ile Asp Glu Ile Thr Asp	
174 179 184 189	
ata aat aat acc acc cag ttg gcc ata ttc atc cgt ggt gtc gat gag	926

Ile Asn Asn Thr Thr	Gln Leu Ala Ile Phe	Ile Arg Gly Val Asp Glu	
190	195	200	205
aat ttc gat gtg tcc	gaa gaa ctt ctg gac	acg gtg ccc atg acg ggt	974
Asn Phe Asp Val Ser	Glu Glu Leu Leu Asp	Thr Val Pro Met Thr Gly	
206	211	216	221
aca aaa tct ggc aac	gag atc ttt tcg cgt	gtt gag aag agc ctg aaa	1022
Thr Lys Ser Gly Asn	Glu Ile Phe Ser Arg	Val Glu Lys Ser Leu Lys	
222	227	232	237
aag ttc tgt atc gac	tgg tcg aaa tta gta	agc gtg gcc tcc act ggc	1070
Lys Phe Cys Ile Asp	Trp Ser Lys Leu Val	Ser Val Ala Ser Thr Gly	
238	243	248	253
acc cca gcg atg gtg	gat gcc aat aac ggg	ctt gtc aca aaa ctg aag	1118
Thr Pro Ala Met Val	Asp Ala Asn Asn Gly	Leu Val Thr Lys Leu Lys	
254	259	264	269
tcc agg gtg gcg acg	ttc tgc aag ggt gcg	gaa ctg aag tcc atc tgt	1166
Ser Arg Val Ala Thr	Phe Cys Lys Gly Ala	Glu Leu Lys Ser Ile Cys	
270	275	280	285
tgt ata att cat ccg	gaa tca ctc tgt gct	cag aag ttg aag atg gac	1214
Cys Ile Ile His Pro	Glu Ser Leu Cys Ala	Gln Lys Leu Lys Met Asp	
286	291	296	301
cac gtc atg gac gtg	gta gtg aag tcc gtg	aac tgg ata tgc tcc cgg	1262
His Val Met Asp Val	Val Val Lys Ser Val	Asn Trp Ile Cys Ser Arg	
302	307	312	317
gga ctg aac cac agc	gag ttc aca acc ttg	ctc tat gag ctg gac agc	1310
Gly Leu Asn His Ser	Glu Phe Thr Thr Leu	Leu Tyr Glu Leu Asp Ser	
318	323	328	333
cag tat ggt agc ctc	ctg tac tac acg gag	att aag tgg ctc agt cgc	1358
Gln Tyr Gly Ser Leu	Leu Tyr Tyr Thr Glu	Ile Lys Trp Leu Ser Arg	
334	339	344	349
ggg ctc gtg cta aag	aga ttt ttc gaa tcc	ttg gaa gaa atc gac tcc	1406
Gly Leu Val Leu Lys	Arg Phe Phe Glu Ser	Leu Glu Glu Ile Asp Ser	
350	355	360	365
ttc atg tca tcc aga	ggg aaa ccc ctg cct	caa ctg agc tcc ata gat	1454
Phe Met Ser Ser Arg	Gly Lys Pro Leu Pro	Gln Leu Ser Ser Ile Asp	
366	371	376	381
tgg atc cga gac ctg	gcc ttc ttg gtt gac	atg acg atg cat ctg aac	1502
Trp Ile Arg Asp Leu	Ala Phe Leu Val Asp	Met Thr Met His Leu Asn	
382	387	392	397
gct ttg aac atc tct	ctc caa gga cac tcc	caa atc gtc acg cag atg	1550
Ala Leu Asn Ile Ser	Leu Gln Gly His Ser	Gln Ile Val Thr Gln Met	
398	403	408	413
tat gac ctg atc cgg	gcg ttc cta gca aaa	ctg tgc ctc tgg gag act	1598
Tyr Asp Leu Ile Arg	Ala Phe Leu Ala Lys	Leu Cys Leu Trp Glu Thr	



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2591

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Met Ala Gly Gly Arg His Arg Arg Val Val Gly Thr Leu	
1 5 10	
cac ctg ctg ctg ctg gtg gcc gcc ctg ccc tgg gca tcc agg ggg gtc	98
His Leu Leu Leu Leu Val Ala Ala Leu Pro Trp Ala Ser Arg Gly Val	
14 19 24 29	
agt ccg agt gcc tca gcc tgg cca gag gag aag aat tac cac cag cca	146
Ser Pro Ser Ala Ser Ala Trp Pro Glu Glu Lys Asn Tyr His Gln Pro	
30 35 40 45	
gcc att ttg aat tca tgc gct ctt cgg caa att gca gaa ggc acc agt	194
Ala Ile Leu Asn Ser Ser Ala Leu Arg Gln Ile Ala Glu Gly Thr Ser	
46 51 56 61	
atc tct gaa atg tgg caa aat gac tta cag cca ttg ctg ata gag cga	242
Ile Ser Glu Met Trp Gln Asn Asp Leu Gln Pro Leu Leu Ile Glu Arg	
62 67 72 77	
tac ccg gga tcc cct gga agc tat gct gct cgt cag cac atc atg cag	290
Tyr Pro Gly Ser Pro Gly Ser Tyr Ala Ala Arg Gln His Ile Met Gln	
78 83 88 93	
cga att cag agg ctt cag gct gac tgg gtc ttg gaa ata gac acc ttc	338
Arg Ile Gln Arg Leu Gln Ala Asp Trp Val Leu Glu Ile Asp Thr Phe	
94 99 104 109	
ttg agt cag aca ccc tat ggg tac cgg tct ttc tca aat atc atc agc	386
Leu Ser Gln Thr Pro Tyr Gly Tyr Arg Ser Phe Ser Asn Ile Ile Ser	
110 115 120 125	
acc ctc aat ccc act gct aaa cga cat ttg gtc ctc gcc tgc cac tat	434
Thr Leu Asn Pro Thr Ala Lys Arg His Leu Val Leu Ala Cys His Tyr	
126 131 136 141	
gac tcc aag tat ttt tcc cac tgg aac aac aga gtg ttt gta gga gcc	482
Asp Ser Lys Tyr Phe Ser His Trp Asn Asn Arg Val Phe Val Gly Ala	
142 147 152 157	
act gat tca gcc gtg cca tgt gca atg atg ttg gaa ctt gct cgt gcc	530

Thr Asp Ser Ala Val	Pro Cys Ala Met Met	Leu Glu Leu Ala Arg Ala	
158	163	168	173
tta gac aag aaa ctc	ctt tcc tta aag act	gtt tca gac tcc aag cca	578
Leu Asp Lys Lys Leu	Leu Ser Leu Lys Thr	Val Ser Asp Ser Lys Pro	
174	179	184	189
gat ttg tca ctc cag	ctg atc ttc ttt gat	ggt gaa gag gct ttt ctt	626
Asp Leu Ser Leu Gln	Leu Ile Phe Phe Asp	Gly Glu Glu Ala Phe Leu	
190	195	200	205
cac tgg tct cct caa	gat tct ctc tat ggg	tct cga cac tta gct gca	674
His Trp Ser Pro Gln	Asp Ser Leu Tyr Gly	Ser Arg His Leu Ala Ala	
206	211	216	221
aag atg gca tcg acc	ccg cac cca cct gga	gcg aga ggc acc agc caa	722
Lys Met Ala Ser Thr	Pro His Pro Pro Gly	Ala Arg Gly Thr Ser Gln	
222	227	232	237
ctg cat ggc atg gat	tta ttg gtc tta ttg	gat ttg att gga gct cca	770
Leu His Gly Met Asp	Leu Leu Val Leu Leu	Asp Leu Ile Gly Ala Pro	
238	243	248	253
aac cca acg ttt ccc	aat ttt ttt cca aac	tca gcc agg tgg ttc gaa	818
Asn Pro Thr Phe Pro	Asn Phe Phe Pro Asn	Ser Ala Arg Trp Phe Glu	
254	259	264	269
aga ctt caa gca att	gaa cat gaa ctt cat	gaa ttg ggt ttg ctc aag	866
Arg Leu Gln Ala Ile	Glu His Glu Leu His	Glu Leu Gly Leu Leu Lys	
270	275	280	285
gat cac tct ttg gag	ggg cgg tat ttc cag	aat tac agt tat gga ggt	914
Asp His Ser Leu Glu	Gly Arg Tyr Phe Gln	Asn Tyr Ser Tyr Gly Gly	
286	291	296	301
gtg att cag gat gac	cat att cca ttt tta	aga aga ggt gtt cca gtt	962
Val Ile Gln Asp Asp	His Ile Pro Phe Leu	Arg Arg Gly Val Pro Val	
302	307	312	317
ctg cat ctg ata ccg	tct cct ttc cct gaa	gtc tgg cac acc atg gat	1010
Leu His Leu Ile Pro	Ser Pro Phe Pro Glu	Val Trp His Thr Met Asp	
318	323	328	333
gac aat gaa gaa aat	ttg gat gaa tca acc	att gac aat cta aac aaa	1058
Asp Asn Glu Glu Asn	Leu Asp Glu Ser Thr	Ile Asp Asn Leu Asn Lys	
334	339	344	349
atc cta caa gtc ttt	gtg ttg gaa tat ctt	cat ttg taa tactctgatt	1107
Ile Leu Gln Val Phe	Val Leu Glu Tyr Leu	His Leu *	
350	355	360	
tagtttagga taattggttc	tagaattgaa ttcaaaagtc	aaggcatcat ttaaaataat	1167
ctgatttcag acaaagctg	tgtggaaaca tctatcctat	agatcatcct attcttatgt	1227
gtctttgggtt atcagatcaa	ttacagaata attgtgttgt	gatattgtgt cctaaattgc	1287

tcattaattt ttatttacag attgaaaaag aggcaccgtg taaagaaaat ggcaaaaataa 1347  
 atatctttcc aaggatcatc atcacgatag ctaaacagta cttaaatagc ggttggaact 1407  
 aggtagcctt tcgaatttta tgattttttc atatgtggaa atctattaca tgtaatacaa 1467  
 aacaaacatg tagtttgaag gcggtcagat ttctttgaga aatctttgta gagttaattt 1527  
 tatggaaatt aaaatcagaa ttaaattgct 1556

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cac ctg ctg ctg ctg gtg gcc gcc ctg ccc tgg gca tcc agg ggg gtc 98  
 His Leu Leu Leu Leu Val Ala Ala Leu Pro Trp Ala Ser Arg Gly Val  
   14                                  19                                  24                                  29

agt ccg agt gcc tca gcc tgg cca gag gag aag cac atc atg cag cga 146  
 Ser Pro Ser Ala Ser Ala Trp Pro Glu Glu Lys His Ile Met Gln Arg  
   30                                  35                                  40                                  45

att cag agg ctt cag gct gac tgg gtc ttg gaa ata gac acc ttc ttg 194  
 Ile Gln Arg Leu Gln Ala Asp Trp Val Leu Glu Ile Asp Thr Phe Leu  
   46                                  51                                  56                                  61

agt cag aca ccc tat ggg tac cgg tct ttc tca aat atc atc agc acc 242  
 Ser Gln Thr Pro Tyr Gly Tyr Arg Ser Phe Ser Asn Ile Ile Ser Thr  
   62                                  67                                  72                                  77

ctc aat ccc act gct aaa cga cat ttg gtc ctc gcc tgc cac tat gac 290  
 Leu Asn Pro Thr Ala Lys Arg His Leu Val Leu Ala Cys His Tyr Asp  
   78                                  83                                  88                                  93

tcc aag tat ttt tcc cac tgg aac aac aga gtg ttt gta gga gcc act 338  
 Ser Lys Tyr Phe Ser His Trp Asn Asn Arg Val Phe Val Gly Ala Thr  
   94                                  99                                  104                                  109

gat tca gcc gtg cca tgt gca atg atg ttg gaa ctt gct cgt gcc tta 386  
 Asp Ser Ala Val Pro Cys Ala Met Met Leu Glu Leu Ala Arg Ala Leu  
  110                                 115                                 120                                 125

gac aag aaa ctc ctt tcc tta aag act gtt tca gac tcc aag cca gat 434  
 Asp Lys Lys Leu Leu Ser Leu Lys Thr Val Ser Asp Ser Lys Pro Asp

126	131	136	141	
ttg tca ctc cag ctg	atc ttc ttt gat ggt	gaa gag gct ttt ctt cac		482
Leu Ser Leu Gln Leu	Ile Phe Phe Asp Gly	Glu Glu Ala Phe Leu His		
142	147	152	157	
tgg tct cct caa gat	tct ctc tat ggg tct	cga cac tta gct gca aag		530
Trp Ser Pro Gln Asp	Ser Leu Tyr Gly Ser	Arg His Leu Ala Ala Lys		
158	163	168	173	
atg gca tcg acc ccg	cac cca cct gga gcg	aga ggc acc agc caa ctg		578
Met Ala Ser Thr Pro	His Pro Pro Gly Ala	Arg Gly Thr Ser Gln Leu		
174	179	184	189	
cat ggc atg gat tta	ttg gtc tta ttg gat	ttg att gga gct cca aac		626
His Gly Met Asp Leu	Leu Val Leu Leu Asp	Leu Ile Gly Ala Pro Asn		
190	195	200	205	
cca acg ttt ccc aat	ttt ttt cca aac tca	gcc agg tgg ttc gaa aga		674
Pro Thr Phe Pro Asn	Phe Phe Pro Asn Ser	Ala Arg Trp Phe Glu Arg		
206	211	216	221	
ctt caa gca att gaa	cat gaa ctt cat gaa	ttg ggt ttg ctc aag gat		722
Leu Gln Ala Ile Glu	His Glu Leu His Glu	Leu Gly Leu Leu Lys Asp		
222	227	232	237	
cac tct ttg gag ggg	cgg tat ttc cag aat	tac agt tat gga ggt gtg		770
His Ser Leu Glu Gly	Arg Tyr Phe Gln Asn	Tyr Ser Tyr Gly Gly Val		
238	243	248	253	
att cag gat gac cat	att cca ttt tta aga	aga ggt gtt cca gtt ctg		818
Ile Gln Asp Asp His	Ile Pro Phe Leu Arg	Arg Gly Val Pro Val Leu		
254	259	264	269	
cat ctg ata ccg tct	cct ttc cct gaa gtc	tgg cac acc atg gat gac		866
His Leu Ile Pro Ser	Pro Phe Pro Glu Val	Trp His Thr Met Asp Asp		
270	275	280	285	
aat gaa gaa aat ttg	gat gaa tca acc att	gac aat cta aac aaa atc		914
Asn Glu Glu Asn Leu	Asp Glu Ser Thr Ile	Asp Asn Leu Asn Lys Ile		
286	291	296	301	
cta caa gtc ttt gtg	ttg gaa tat ctt cat	ttg taa tact ctgatttagt		964
Leu Gln Val Phe Val	Leu Glu Tyr Leu His	Leu *		
302	307	312		
ttaggataat tgggttctaga	attgaattca aaagtcaagg	catcatttaa aataatctga		1024
tttcagacaa atgctgtgtg	gaaacatcta tcctatagat	catcctattc ttatgtgtct		1084
ttggttatca gatcaattac	agaataattg tgttgtgata	ttgtgtccta aattgctcat		1144
taatttttat ttacagattg	aaaaagaggc accgtgtaaa	gaaaatggca aaataaatat		1204
ctttccaagg atcatcatca	cgatagctaa acagtactta	aatagcgggtt ggaactaggt		1264
agcctttcga attttatgat	tttttcatat gtggaaatct	attacatgta atacaaaaca		1324

aacatgtagt ttgaaggcgg tcagatttct ttgagaaatc tttgtagagt taattttatg 1384

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<222> (124)..(639)

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acc atg tcg agc aaa aga aca aag acc aag acc aag aag cgc cct cag 168  
Met Ser Ser Lys Arg Thr Lys Thr Lys Thr Lys Lys Arg Pro Gln  
1 5 10

cgt gca aca tcc aat gtg ttt gct atg ttt gac cag tca cag att cag 216  
Arg Ala Thr Ser Asn Val Phe Ala Met Phe Asp Gln Ser Gln Ile Gln  
16 21 26 31

gag ttc aaa gag gcc ttc aac atg att gat cag aac aga gat ggt ttc 264  
Glu Phe Lys Glu Ala Phe Asn Met Ile Asp Gln Asn Arg Asp Gly Phe  
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Thr Asp Asp Ser Arg Val Gly Gly Ile Met Arg Gly Glu Lys Asn Tyr	
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Tyr Phe Arg Gly Ala Ala Gly Asp His Gly Ser Cys Pro Thr Thr Thr	
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Ser Trp Ser Glu Ser Gly Gly Gly Leu Ser Gly Gly Asp Glu Glu Asp	
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Phe	Gln	Ala	Leu	Gln	Ala	Ala	Leu	Pro	Arg	Arg	Gly	Gly	Arg	Leu	Gly	
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Phe	Pro	Arg	Arg	Lys	Glu	Ala	Leu	Tyr	Arg	Ala	Leu	Gly	Arg	Val	Leu	
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Ser	Leu	Ala	Leu	Leu	Pro	Gln	Leu	Val	Val	Ser	Leu	Arg	Glu	Glu	Asn	
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Ile	Ile	Ser	Leu	Ala	Arg	Lys	Leu	Gly	Asp	Gln	Glu	Thr	Glu	Glu	Glu	
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Gln	Asp	Arg	Phe	Gln	Ser	Tyr	Ile	Ser	Arg	Leu	Pro	Ser	Ala	Leu	Arg	
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Arg	His	Tyr	Asn	Arg	Arg	Leu	Glu	Ser	Gln	Phe	Gly	Ser	Gln	Val	Pro	
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Tyr Tyr Leu Glu Leu Glu Ala Ser Gly Phe Pro Glu Asp Pro Leu Pro	
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Cys Ala Val Thr Leu Ser Asn Ser Asn Leu Lys Phe Gly Ile Ile Pro	
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Gln Glu Leu His Ser Arg Leu Leu Asp Gln Glu Asp Tyr Lys Asn Arg	
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Ser Ser Thr Pro His Ser Ser Leu Val Gly Phe Ile Ser Leu Leu Tyr	
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His Lys His Ser Arg Val Arg Glu Glu Val Val Asn Ile Cys Ile Cys	
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Ser Leu Leu Thr Tyr Pro Ser Glu Asp Phe Asp Leu Pro Lys Leu Ser	
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Phe Asp Leu Ala Pro Ala Leu Val Asp Ser Lys Arg Arg Val Arg Gln	
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Lys Thr Ser Ile Leu Phe Lys Ala Val Asp Thr Val Glu Leu Gln Asp	
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Asp Thr Asp Trp Leu Leu Ala Gly Asn Arg Thr Gln Ser Ala His Cys	
609 614 619 624	
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His Cys Gly Asp His Val Arg Asp Ser Met His Ile Tyr Gly Ser Tyr	
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Ser Pro Thr Ile Cys Thr Arg Arg Val Leu Ser Ala Gly Lys Gly Lys	
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Asn Lys Leu Pro Trp Glu Asn Glu Gln Pro Gly Ile Met Gly Glu Asn	
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Ile Pro Ser Ala Lys Leu Lys Leu Ser Gln Gly Met Pro Val Asn Asp	
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Ser Tyr Pro Val Ser Ser Pro Arg Thr Ser Pro Lys His Thr Ser Pro				
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His Gly Glu Asn Ser Gln Glu Lys Pro Pro Val Gln Leu Thr Pro Ala				
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Leu Val Arg Ser Pro Ser Ser Arg Arg Gly Leu Asn Gly Thr Lys Pro				
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Val Pro Pro Ile Pro Arg Gly Ile Ser Leu Leu Pro Asp Lys Ala Asp				
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Cys Glu Lys Asp Ser Leu Pro Ile Asp Leu Ser Glu Leu Asn Phe Lys				
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Asp Lys Asp Leu Asp Gln Glu Glu Met His Ser Ser Leu Arg Ser Leu				
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Asp Leu Glu Ser Pro Asp Ser Ala Met Lys Leu Asp Leu Thr Met Asp				
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Val Val Val Gly Lys Gly Val Phe Gly Ser Leu Ser Ser Ala Pro Ala	
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Glu Lys Asn Ser Trp Glu Arg Met Arg His Thr Gly Thr Glu Lys Met	
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aatatttagc catttaccta aaa atg gta ttt ttt aca tgc aat gca tgt	530
Met Val Phe Phe Thr Cys Asn Ala Cys	
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Gly Glu Ser Val Lys Lys Ile Gln Val Glu Lys His Val Ser Val Cys	
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Arg Asn Cys Glu Cys Leu Ser Cys Ile Asp Cys Gly Lys Asp Phe Trp	
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Gly Asp Asp Tyr Lys Asn His Val Lys Cys Ile Ser Glu Asp Gln Lys	
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tat ggt ggc aaa ggc tat gaa ggt aaa acc cac aaa ggc gac atc aaa	722
Tyr Gly Gly Lys Gly Tyr Glu Gly Lys Thr His Lys Gly Asp Ile Lys	
58 63 68 73	
cag cag gcg tgg att cag aaa att agt gaa tta ata aag aga ccc aat	770
Gln Gln Ala Trp Ile Gln Lys Ile Ser Glu Leu Ile Lys Arg Pro Asn	
74 79 84 89	
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Val Ser Pro Lys Val Arg Glu Leu Leu Glu Gln Ile Ser Ala Phe Asp	
90 95 100 105	
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Asn Val Pro Arg Lys Lys Ala Lys Phe Gln Asn Trp Met Lys Asn Ser	
106 111 116 121	
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Leu Lys Val His Asn Glu Ser Ile Leu Asp Gln Val Trp Asn Ile Phe	
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Pro Leu His Pro Val Ala Asn Pro His Ala Glu Ile Ser Thr Lys Val	
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Lys	Asn	Lys	Arg	Glu	Arg	Lys	Glu	Glu	Arg	Gln	Lys	Lys	Arg	Lys	Arg	
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Val	Gly	Ala	Gly	Lys	Arg	Lys	Arg	Arg	His	Ser	Glu	Val	Glu	Thr	Asp	
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Ser	Lys	Lys	Lys	Lys	Met	Lys	Leu	Pro	Glu	His	Pro	Glu	Gly	Gly	Glu	
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Pro	Glu	Asp	Asp	Glu	Ala	Pro	Ala	Lys	Asp	Pro	Trp	Gln	Met	Leu	Leu	
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Ile	Lys	Cys	Ser	Ile	Tyr	Phe	Pro	Leu	Thr	Ala	Arg	Trp	Lys	Pro	Gln	
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aat	cct	gaa	gag	cac	cgg	aaa	atc	act	gcc	agt	tga					1526
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                                     Met Ala Met Ala
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atg tcg gac agt ggg gcg agc cgc ctg cgt cgg cag ctg gag tca ggg      161
Met Ser Asp Ser Gly Ala Ser Arg Leu Arg Arg Gln Leu Glu Ser Gly
  5                      10                      15                      20

ggt ttt gag gcg cgg ctg tac gtg aag cag ctc tcg cag cag tcg gat      209
Gly Phe Glu Ala Arg Leu Tyr Val Lys Gln Leu Ser Gln Gln Ser Asp
  21                      26                      31                      36

ggg gac cgg gac ctc cag gag cac cgg cag cgc atc cag gcg ctg gcg      257
Gly Asp Arg Asp Leu Gln Glu His Arg Gln Arg Ile Gln Ala Leu Ala
  37                      42                      47                      52

gag gag acg gcg cag aac ctg aag cgc aac gtc tac cag aac tac cgg      305
Glu Glu Thr Ala Gln Asn Leu Lys Arg Asn Val Tyr Gln Asn Tyr Arg
  53                      58                      63                      68

cag ttc ata gag acg gcc cgc gag atc tcc tac ctg gag agc gag atg      353
Gln Phe Ile Glu Thr Ala Arg Glu Ile Ser Tyr Leu Glu Ser Glu Met
  69                      74                      79                      84

tac cag ctc agc cat ttg ctg acc gag cag aaa agc agc ctg gag agc      401
Tyr Gln Leu Ser His Leu Leu Thr Glu Gln Lys Ser Ser Leu Glu Ser
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atc ccg ctt acg ttg ctg cct gcc gct gct gcc gcc gga gcc gcc gcc      449
Ile Pro Leu Thr Leu Leu Pro Ala Ala Ala Ala Ala Gly Ala Ala Ala
  101                      106                      111                      116

gcc tct gga ggg gag gag gga gtc ggt ggg gcg ggg ggc cga gac cac      497
Ala Ser Gly Gly Glu Glu Gly Val Gly Gly Ala Gly Gly Arg Asp His
  117                      122                      127                      132

ctc cga ggc cag gcc ggc ttt ttc tcc acc ccc ggg ggt gcc tcc cgc      545
Leu Arg Gly Gln Ala Gly Phe Phe Ser Thr Pro Gly Gly Ala Ser Arg
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gac ggc tcc ggt cca ggc gag gaa gga aag cag cgc act ctc acc acc      593
Asp Gly Ser Gly Pro Gly Glu Glu Gly Lys Gln Arg Thr Leu Thr Thr
  149                      154                      159                      164

ctg ctt gag aag gtg gaa ggc tgc agg cat ctg ctg gag acg ccg gga      641
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ttg gtg gct acc tgg	ctg cct cag cgg cgt	ggg atg tat cgc tac aac		785
Leu Val Ala Thr Trp	Leu Pro Gln Arg Arg	Gly Met Tyr Arg Tyr Asn		
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gct ctc tat tcc cta	gat ggt ttg gcc gta	gtc aat gtc aag gac aac		833
Ala Leu Tyr Ser Leu	Asp Gly Leu Ala Val	Val Asn Val Lys Asp Asn		
229	234	239	244	
ccg ccc atg aag gac	atg ttc aag ctg ctt	atg ttc ccc gag aac cgt		881
Pro Pro Met Lys Asp	Met Phe Lys Leu Leu	Met Phe Pro Glu Asn Arg		
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Ile Phe Gln Ala Glu	Asn Ala Lys Ile Lys	Arg Glu Trp Leu Glu Val		
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ctg gag gac acc aag	agg gcc ctc agt gag	aaa agg cga agg gag cag		977
Leu Glu Asp Thr Lys	Arg Ala Leu Ser Glu	Lys Arg Arg Arg Glu Gln		
277	282	287	292	
gag gag gca gcg gcc	cct cga ggg cca ccc	caa gtg act tcc aag gcc		1025
Glu Glu Ala Ala Ala	Pro Arg Gly Pro Pro	Gln Val Thr Ser Lys Ala		
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act aac cca ttt gag	gat gac gaa gaa gaa	gaa cca gct gtt cct gag		1073
Thr Asn Pro Phe Glu	Asp Asp Glu Glu Glu	Glu Pro Ala Val Pro Glu		
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gta gag gaa gag aag	gtg gac ctc tcc atg	gaa tgg atc cag gag tta		1121
Val Glu Glu Glu Lys	Val Asp Leu Ser Met	Glu Trp Ile Gln Glu Leu		
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Pro Glu Asp Leu Asp	Val Cys Ile Ala Gln	Arg Asp Phe Glu Gly Ala		
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Val Asp Leu Leu Asp	Lys Leu Asn His Tyr	Leu Glu Asp Lys Pro Ser		
357	362	367	372	
cca cct cct gta aaa	gaa cta agg gcc aaa	gtg gag gag cga gtt cga		1265
Pro Pro Pro Val Lys	Glu Leu Arg Ala Lys	Val Glu Glu Arg Val Arg		
373	378	383	388	
cag ctc act gag gtg	cta gtt ttc gaa ctc	tcc cca gat cgt tcc ctg		1313
Gln Leu Thr Glu Val	Leu Val Phe Glu Leu	Ser Pro Asp Arg Ser Leu		
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Arg Gly Gly Pro Lys Ala Thr Arg Arg Ala Val Ser Gln Leu Ile Arg	
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Leu Gly Gln Cys Thr Lys Ala Cys Glu Leu Phe Leu Arg Asn Arg Ala	
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Ala Ala Val His Thr Ala Ile Arg Gln Leu Arg Ile Glu Gly Ala Thr	
437 442 447 452	
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Leu Leu Tyr Ile His Lys Leu Cys His Val Phe Phe Thr Ser Leu Leu	
453 458 463 468	
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Glu Thr Ala Arg Glu Phe Glu Ile Asp Phe Ala Gly Thr Asp Ser Gly	
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Cys Tyr Ser Ala Phe Val Val Trp Ala Arg Ser Ala Met Gly Met Phe	
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Val Asp Ala Phe Ser Lys Gln Val Phe Asp Ser Lys Glu Ser Leu Ser	
501 506 511 516	
aca gca gct gag tgt gta aaa gtg gct aag gag cat tgc cag caa ctg	1697
Thr Ala Ala Glu Cys Val Lys Val Ala Lys Glu His Cys Gln Gln Leu	
517 522 527 532	
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Gly Asp Ile Gly Leu Asp Leu Thr Phe Ile Ile His Ala Leu Leu Val	
533 538 543 548	
aaa gac atc caa ggg gcc ttg cac agt tac aaa gaa atc atc att gaa	1793
Lys Asp Ile Gln Gly Ala Leu His Ser Tyr Lys Glu Ile Ile Ile Glu	
549 554 559 564	
gcc act aaa cat cgc aac tct gaa gag atg tgg agg agg atg aac ttg	1841
Ala Thr Lys His Arg Asn Ser Glu Glu Met Trp Arg Arg Met Asn Leu	
565 570 575 580	
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Met Thr Pro Glu Ala Leu Gly Lys Leu Lys Glu Glu Met Lys Ser Cys	
581 586 591 596	
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Gly Val Ser Asn Phe Glu Gln Tyr Thr Gly Asp Asp Cys Trp Val Asn	
597 602 607 612	
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Leu Ser Tyr Thr Val Val Ala Phe Thr Lys Gln Thr Met Gly Phe Leu	
613 618 623 628	

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Glu Glu Ala Leu Lys Leu Tyr Phe Pro Glu Leu His Met Val Leu Leu	
629 634 639 644	
gag agc ctg gtg gaa atc att ttg gtt gct gtt cag cat gtg gat tat	2081
Glu Ser Leu Val Glu Ile Ile Leu Val Ala Val Gln His Val Asp Tyr	
645 650 655 660	
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Ser Leu Arg Cys Glu Gln Asp Pro Glu Lys Lys Ala Phe Ile Arg Gln	
661 666 671 676	
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Asn Ala Ser Phe Leu Tyr Glu Thr Val Leu Pro Val Val Glu Lys Arg	
677 682 687 692	
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Phe Glu Glu Gly Val Gly Lys Pro Ala Lys Gln Leu Gln Asp Leu Arg	
693 698 703 708	
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Asn Ala Ser Arg Leu Ile Arg Val Asn Pro Glu Ser Thr Thr Ser Val	
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Met Glu Asp Gly Val Leu Lys Glu Gly Phe Leu Val Lys Arg	
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Gly His Ile Val His Asn Trp Lys Ala Arg Trp Phe Ile Leu Arg Gln	
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Asn Thr Leu Val Tyr Tyr Lys Leu Glu Gly Gly Arg Arg Val Thr Pro	

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Pro Lys Gly Arg Ile Leu Leu Asp Gly Cys Thr Ile Thr Cys Pro Cys				
47	52	57	62	
ctg gag tat gaa aac cga ccg ctc ctc att aag ctg aag act caa aca				301
Leu Glu Tyr Glu Asn Arg Pro Leu Leu Ile Lys Leu Lys Thr Gln Thr				
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Ser Thr Glu Tyr Phe Leu Glu Ala Cys Ser Arg Glu Glu Arg Asp Ala				
79	84	89	94	
tgg gcc ttt gag atc acc ggg gct att cat gca ggg cag ccg ggg aag				397
Trp Ala Phe Glu Ile Thr Gly Ala Ile His Ala Gly Gln Pro Gly Lys				
95	100	105	110	
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Val Gln Gln Leu His Ser Leu Arg Asn Ser Phe Lys Leu Pro Pro His				
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Ile Ser Leu His Arg Ile Val Asp Lys Met His Asp Ser Asn Thr Gly				
127	132	137	142	
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Ile Arg Ser Ser Pro Asn Met Glu Gln Gly Ser Thr Tyr Lys Lys Thr				
143	148	153	158	
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Phe Leu Gly Ser Ser Leu Val Asp Trp Leu Ile Ser Asn Ser Phe Thr				
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Ala Ser Arg Leu Glu Ala Val Thr Leu Ala Ser Met Leu Met Glu Glu				
175	180	185	190	
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Asn Phe Leu Arg Pro Val Gly Val Arg Ser Met Gly Ala Ile Arg Ser				
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Gly Asp Leu Ala Glu Gln Phe Leu Asp Asp Ser Thr Ala Leu Tyr Thr				
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Phe Ala Glu Ser Tyr Lys Lys Lys Ile Ser Pro Lys Glu Glu Ile Ser				
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Lys Leu Thr *	
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Asn	Ser	Lys	His	Thr	Ser	Gln	Ser	Arg	Ala	Glu	Glu	Val	Asp	Tyr	Gly	
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Glu	Glu	Asn	Glu	Asp	Gly	Thr	Gln	Val	Ser	Pro	Gly	Ala	His	Tyr	Cys	
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agc	ccc	act	ggc	gca	ggc	tgc	ccc	agg	ccc	tgt	gca	gac	aca	cca	ggc	258
Ser	Pro	Thr	Gly	Ala	Gly	Cys	Pro	Arg	Pro	Cys	Ala	Asp	Thr	Pro	Gly	
36					41					46					51	
cct	cag	ccg	cag	ccc	atg	gac	ctg	cgg	gtg	ggc	cag	cgg	ccc	cca	gtg	306
Pro	Gln	Pro	Gln	Pro	Met	Asp	Leu	Arg	Val	Gly	Gln	Arg	Pro	Pro	Val	
52					57					62					67	
gag	ccc	cca	cca	gag	ccc	aca	ttg	ctg	gcc	ctg	cag	cgt	ccc	cag	cgc	354
Glu	Pro	Pro	Pro	Glu	Pro	Thr	Leu	Leu	Ala	Leu	Gln	Arg	Pro	Gln	Arg	
68					73					78					83	
ctg	cac	cac	cac	ctc	ttc	cta	gca	ggc	ctg	cag	cag	cag	cgc	tgc	gtg	402
Leu	His	His	His	Leu	Phe	Leu	Ala	Gly	Leu	Gln	Gln	Gln	Arg	Ser	Val	
84					89					94					99	
gag	ccc	atg	agg	ctc	tcc	atg	gac	acg	ccg	atg	ccc	gag	ttg	cag	gtg	450
Glu	Pro	Met	Arg	Leu	Ser	Met	Asp	Thr	Pro	Met	Pro	Glu	Leu	Gln	Val	
100					105					110					115	
gga	ccc	cag	gaa	caa	gag	ctg	cgg	cag	ctt	ctc	cac	aag	gac	aag	agc	498
Gly	Pro	Gln	Glu	Gln	Glu	Leu	Arg	Gln	Leu	Leu	His	Lys	Asp	Lys	Ser	
116					121					126					131	
aag	cga	agt	gct	gta	gcc	agc	agc	gtg	gtc	aag	cag	aag	cta	gcg	gag	546
Lys	Arg	Ser	Ala	Val	Ala	Ser	Ser	Val	Val	Lys	Gln	Lys	Leu	Ala	Glu	
132					137					142					147	
gtg	att	ctg	aaa	aaa	cag	cag	gcg	gcc	cta	gaa	aga	aca	gtc	cat	ccc	594
Val	Ile	Leu	Lys	Lys	Gln	Gln	Ala	Ala	Leu	Glu	Arg	Thr	Val	His	Pro	
148					153					158					163	
aac	agc	ccc	ggc	att	ccc	tac	aga	acc	ctg	gag	ccc	ctg	gag	acg	gaa	642
Asn	Ser	Pro	Gly	Ile	Pro	Tyr	Arg	Thr	Leu	Glu	Pro	Leu	Glu	Thr	Glu	
164					169					174					179	
gga	gcc	acc	cgc	tcc	atg	ctc	agc	agc	ttt	ttg	cct	cct	gtt	ccc	agc	690
Gly	Ala	Thr	Arg	Ser	Met	Leu	Ser	Ser	Phe	Leu	Pro	Pro	Val	Pro	Ser	
180					185					190					195	
ctg	ccc	agt	gac	ccc	cca	gag	cac	ttc	cct	ctg	cgc	aag	aca	gtc	tct	738
Leu	Pro	Ser	Asp	Pro	Pro	Glu	His	Phe	Pro	Leu	Arg	Lys	Thr	Val	Ser	
196					201					206					211	
gag	ccc	aac	ctg	aag	ctg	cgc	tat	aag	ccc	aag	aag	tcc	ctg	gag	cgg	786
Glu	Pro	Asn	Leu	Lys	Leu	Arg	Tyr	Lys	Pro	Lys	Lys	Ser	Leu	Glu	Arg	
212					217					222					227	
agg	aag	aat	cca	ctg	ctc	cga	aag	gag	agt	gcg	ccc	ccc	agc	ctc	cgg	834
Arg	Lys	Asn	Pro	Leu	Leu	Arg	Lys	Glu	Ser	Ala	Pro	Pro	Ser	Leu	Arg	

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Arg Arg Pro Ala Glu Thr Leu Gly Asp Ser Ser Pro Ser Ser Ser Ser				
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acg ccc gca tca gga tgc agc tcc ccc aat gac agc gag cac ggc ccc				930
Thr Pro Ala Ser Gly Cys Ser Ser Pro Asn Asp Ser Glu His Gly Pro				
260	265	270	275	
aat ccc atc ctg ggc tgc gag gcg ctc ttg ggc cag cgg ctg cgg ctg				978
Asn Pro Ile Leu Gly Ser Glu Ala Leu Leu Gly Gln Arg Leu Arg Leu				
276	281	286	291	
cag gag act tct gtg gcc ccg ttc gcc ttg ccg aca gtg tcc ttg ctg				1026
Gln Glu Thr Ser Val Ala Pro Phe Ala Leu Pro Thr Val Ser Leu Leu				
292	297	302	307	
ccc gca atc act ctg ggg ctg ccc gcc cct gcc agg gct gac agt gac				1074
Pro Ala Ile Thr Leu Gly Leu Pro Ala Pro Ala Arg Ala Asp Ser Asp				
308	313	318	323	
cgc agg acc cat ccg act ctg ggc cct cgg ggg cca atc ctg ggg agc				1122
Arg Arg Thr His Pro Thr Leu Gly Pro Arg Gly Pro Ile Leu Gly Ser				
324	329	334	339	
ccc cac act ccc ctc ttc ctg ccc cat ggc ttg gag ccc gag gct ggg				1170
Pro His Thr Pro Leu Phe Leu Pro His Gly Leu Glu Pro Glu Ala Gly				
340	345	350	355	
ggc acc ttg ccc tct cgc ctg cag ccc att ctc ctc ctg gac ccc tca				1218
Gly Thr Leu Pro Ser Arg Leu Gln Pro Ile Leu Leu Leu Asp Pro Ser				
356	361	366	371	
ggc tct cat gcc ccg ctg ctg act gtg ccc ggg ctt ggg ccc ttg ccc				1266
Gly Ser His Ala Pro Leu Leu Thr Val Pro Gly Leu Gly Pro Leu Pro				
372	377	382	387	
ttc cac ttt gcc cag tcc tta atg acc acc gag cgg ctc tct ggg tca				1314
Phe His Phe Ala Gln Ser Leu Met Thr Thr Glu Arg Leu Ser Gly Ser				
388	393	398	403	
ggc ctc cac tgg cca ctg agc cgg act cgc tca gag ccc ctg ccc ccc				1362
Gly Leu His Trp Pro Leu Ser Arg Thr Arg Ser Glu Pro Leu Pro Pro				
404	409	414	419	
agt gcc acc gct ccc cca ccg ccg ggc ccc atg cag ccc cgc ctg gag				1410
Ser Ala Thr Ala Pro Pro Pro Pro Gly Pro Met Gln Pro Arg Leu Glu				
420	425	430	435	
cag ctc aaa act cac gtc cag gtg atc aag agg tca gcc aag ccg agt				1458
Gln Leu Lys Thr His Val Gln Val Ile Lys Arg Ser Ala Lys Pro Ser				
436	441	446	451	
gag aag ccc ccg ctg ccg cag ata ccc tgc gct gaa gac ctg gag aca				1506
Glu Lys Pro Arg Leu Arg Gln Ile Pro Ser Ala Glu Asp Leu Glu Thr				
452	457	462	467	

gat ggc ggg gga ccg ggc cag gtg gtg gac	gat ggc ctg gag cac agg	1554
Asp Gly Gly Gly Pro Gly Gln Val Val Asp	Asp Gly Leu Glu His Arg	
468 473 478 483		
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Glu Leu Gly His Gly Gln Pro Glu Ala Arg	Gly Pro Ala Pro Leu Gln	
484 489 494 499		
cag cac cct cag gtg ttg ctc tgg gaa cag	cag cga ctg gct ggg cgg	1650
Gln His Pro Gln Val Leu Leu Trp Glu Gln	Gln Arg Leu Ala Gly Arg	
500 505 510 515		
ctc ccc cgg ggc agc acc ggg gac act gtg	ctg ctt cct ctg gcc cag	1698
Leu Pro Arg Gly Ser Thr Gly Asp Thr Val	Leu Leu Pro Leu Ala Gln	
516 521 526 531		
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Gly Gly His Arg Pro Leu Ser Arg Ala Gln	Ser Ser Pro Ala Ala Pro	
532 537 542 547		
gcc tca ctg tca gcc cca gag cct gcc agc	cag gcc cga gtc ctc tcc	1794
Ala Ser Leu Ser Ala Pro Glu Pro Ala Ser	Gln Ala Arg Val Leu Ser	
548 553 558 563		
agc tca gag acc cct gcc agg acc ctg ccc	ttc acc aca ggg ctg atc	1842
Ser Ser Glu Thr Pro Ala Arg Thr Leu Pro	Phe Thr Thr Gly Leu Ile	
564 569 574 579		
tat gac tcg gtc atg ctg aag cac cag tgc	tcc tgc ggt gac aac agc	1890
Tyr Asp Ser Val Met Leu Lys His Gln Cys	Ser Cys Gly Asp Asn Ser	
580 585 590 595		
agg cac ccg gag cac gcc ggc cgc atc cag	agc atc tgg tcc cgg ctg	1938
Arg His Pro Glu His Ala Gly Arg Ile Gln	Ser Ile Trp Ser Arg Leu	
596 601 606 611		
cag gag cgg ggg ctc cgg agc cag tgt gag	tgt ctc cga ggc cgg aag	1986
Gln Glu Arg Gly Leu Arg Ser Gln Cys Glu	Cys Leu Arg Gly Arg Lys	
612 617 622 627		
gcc tcc ctg gaa gag ctg cag tca gtc cac	tct gag cgg cac gtg ctc	2034
Ala Ser Leu Glu Glu Leu Gln Ser Val His	Ser Glu Arg His Val Leu	
628 633 638 643		
ctc tac ggc acc aac ccg ctc agc cgc ctc	aaa ctg gac aac ggg aag	2082
Leu Tyr Gly Thr Asn Pro Leu Ser Arg Leu	Lys Leu Asp Asn Gly Lys	
644 649 654 659		
ctg gca ggg ctc ctg gca cag cgg atg ttt	gtg atg ctg ccc tgt ggt	2130
Leu Ala Gly Leu Leu Ala Gln Arg Met Phe	Val Met Leu Pro Cys Gly	
660 665 670 675		
ggg gtt ggg gtg gac act gac acc atc tgg	aat gag ctt cat tcc tcc	2178
Gly Val Gly Val Asp Thr Asp Thr Ile Trp	Asn Glu Leu His Ser Ser	
676 681 686 691		

aat gca gcc cgc tgg gcc gct ggc agt gtc act gac ctc gcc ttc aaa	2226
Asn Ala Ala Arg Trp Ala Ala Gly Ser Val Thr Asp Leu Ala Phe Lys	
692 697 702 707	
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Val Ala Ser Arg Glu Leu Lys Asn Gly Phe Ala Val Val Arg Pro Pro	
708 713 718 723	
gga cac cat gca gat cat tca aca gcc atg ggc ttc tgc ttc ttc aac	2322
Gly His His Ala Asp His Ser Thr Ala Met Gly Phe Cys Phe Phe Asn	
724 729 734 739	
tca gtg gcc atc gcc tgc cgg cag ctg caa cag cag agc aag gcc agc	2370
Ser Val Ala Ile Ala Cys Arg Gln Leu Gln Gln Gln Ser Lys Ala Ser	
740 745 750 755	
aag atc ctc att gta gac tgg gac gtg cac cat ggc aac ggc acc cag	2418
Lys Ile Leu Ile Val Asp Trp Asp Val His His Gly Asn Gly Thr Gln	
756 761 766 771	
caa acc ttc tac caa gac ccc agt gtg ctc tac atc tcc ctg cat cgc	2466
Gln Thr Phe Tyr Gln Asp Pro Ser Val Leu Tyr Ile Ser Leu His Arg	
772 777 782 787	
cat gac gac ggc aac ttc ttc ccg ggg agt ggg gct gtg gat gag gta	2514
His Asp Asp Gly Asn Phe Phe Pro Gly Ser Gly Ala Val Asp Glu Val	
788 793 798 803	
ggg gct ggc agc ggt gag ggc ttc aat gtc aat gtg gcc tgg gct gga	2562
Gly Ala Gly Ser Gly Glu Gly Phe Asn Val Asn Val Ala Trp Ala Gly	
804 809 814 819	
ggt ctg gac ccc ccc atg ggg gat cct gag tac ctg gct gct ttc agg	2610
Gly Leu Asp Pro Pro Met Gly Asp Pro Glu Tyr Leu Ala Ala Phe Arg	
820 825 830 835	
ata gtc gtg atg ccc atc gcc cga gag ttc tct cca gac cta gtc ctg	2658
Ile Val Val Met Pro Ile Ala Arg Glu Phe Ser Pro Asp Leu Val Leu	
836 841 846 851	
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Val Ser Ala Gly Phe Asp Ala Ala Glu Gly His Pro Ala Pro Leu Gly	
852 857 862 867	
ggc tac cat gtt tct gcc aaa tgt ttt gga tac atg acg cag caa ctg	2754
Gly Tyr His Val Ser Ala Lys Cys Phe Gly Tyr Met Thr Gln Gln Leu	
868 873 878 883	
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Met Asn Leu Ala Gly Gly Ala Val Val Leu Ala Leu Glu Gly Gly His	
884 889 894 899	
gac ctc aca gcc atc tgt gac gcc tct gag gcc tgt gtg gct gct ctt	2850
Asp Leu Thr Ala Ile Cys Asp Ala Ser Glu Ala Cys Val Ala Ala Leu	
900 905 910 915	
ctg ggt aac agg gtg gat ccc ctt tca gaa gaa ggc tgg aaa cag aaa	2898

Leu Gly Asn Arg Val	Asp Pro Leu Ser Glu Glu Gly Trp Lys Gln Lys	
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ccc aac ctc aat gcc atc cgc tct ctg gag gcc gtg atc cgg gtg cac		2946
Pro Asn Leu Asn Ala Ile Arg Ser Leu Glu Ala Val Ile Arg Val His		
932	937 942 947	
agt aaa tac tgg ggc tgc atg cag cgc ctg gcc tcc tgt cca gac tcc		2994
Ser Lys Tyr Trp Gly Cys Met Gln Arg Leu Ala Ser Cys Pro Asp Ser		
948	953 958 963	
tgg gtg cct aga gtg cca ggg gct gac aaa gaa gaa gtg gag gca gta		3042
Trp Val Pro Arg Val Pro Gly Ala Asp Lys Glu Glu Val Glu Ala Val		
964	969 974 979	
acc gca ctg gcg tcc ctc tct gtg ggc atc ctg gct gaa gat agg ccc		3090
Thr Ala Leu Ala Ser Leu Ser Val Gly Ile Leu Ala Glu Asp Arg Pro		
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Ser Glu Gln Leu Val Glu Glu Glu Glu Pro Met Asn Leu *		
996	1001 1006	
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gaa ccc gtg cgg ctg gag aga gat att tgt aga gca att gaa tta ttg 101  
Glu Pro Val Arg Leu Glu Arg Asp Ile Cys Arg Ala Ile Glu Leu Leu  
6 11 16 21  
gaa aaa cta caa agg agt gga gaa gta cca cca cag aaa ctt cag gct 149  
Glu Lys Leu Gln Arg Ser Gly Glu Val Pro Pro Gln Lys Leu Gln Ala  
22 27 32 37  
ttg caa aga gtc ctt caa agt gaa ttc tgc aat gct gtg aga gag gta 197  
Leu Gln Arg Val Leu Gln Ser Glu Phe Cys Asn Ala Val Arg Glu Val  
38 43 48 53  
tat gaa cat gtc tat gag act gtg gac atc agt agc agt cct gaa gtg 245  
Tyr Glu His Val Tyr Glu Thr Val Asp Ile Ser Ser Ser Pro Glu Val  
54 59 64 69  
aga gcg aac gct act gca aag gct act gtt gct gca ttt gct gcc agt 293  
Arg Ala Asn Ala Thr Ala Lys Ala Thr Val Ala Ala Phe Ala Ala Ser  
70 75 80 85  
gaa gga cat tct cat cct cga gtt gtt gag cta cca aaa aca gag gag 341  
Glu Gly His Ser His Pro Arg Val Val Glu Leu Pro Lys Thr Glu Glu  
86 91 96 101  
ggc ctt gga ttc aat att atg gga ggc aaa gaa caa aac tct cca atc 389  
Gly Leu Gly Phe Asn Ile Met Gly Gly Lys Glu Gln Asn Ser Pro Ile  
102 107 112 117  
tat ata tcc cga ata att cca ggt gga att gct gat aga cat ggg ggc 437  
Tyr Ile Ser Arg Ile Ile Pro Gly Gly Ile Ala Asp Arg His Gly Gly  
118 123 128 133

ctc aaa cgt gga gat caa ctc ctc tot gtt aat gga gtg agt gtt gaa	485
Leu Lys Arg Gly Asp Gln Leu Leu Ser Val Asn Gly Val Ser Val Glu	
134 139 144 149	
gga gaa cat cat gaa aaa gct gta gaa ctg ctg aaa gcc gca caa gga	533
Gly Glu His His Glu Lys Ala Val Glu Leu Leu Lys Ala Ala Gln Gly	
150 155 160 165	
aag gtt aaa tta gtg gta cga tac aca ccc aaa gtc tta gaa gaa atg	581
Lys Val Lys Leu Val Val Arg Tyr Thr Pro Lys Val Leu Glu Glu Met	
166 171 176 181	
gag tcg cgc ttt gaa aaa atg aga tca gca aaa cgc agg caa cag acc	629
Glu Ser Arg Phe Glu Lys Met Arg Ser Ala Lys Arg Arg Gln Gln Thr	
182 187 192 197	
taa taca tttcaaaact tgatatttca ttttgcggtt tagctagaga agtttttcctt	686
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gatcaggaga	agtatgctga	gctagagttg	aaggaagctt	ctcttttctaa	caagagaaaag	300
cagagttaaa	tt	atg gca gag aca agt ctg tta gag gct ggg gcc tct				348
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Ala Ala Ser Thr Ala Ala Ala Leu Glu Asn Leu Gln Val Glu Ala Ser						
13 18 23 28						
tgc tct gtg tgc ctg gag tat ctg aag gaa cct gtc atc att gag tgt						444
Cys Ser Val Cys Leu Glu Tyr Leu Lys Glu Pro Val Ile Ile Glu Cys						
29 34 39 44						
ggg cac aac ttc tgc aaa gct tgc atc acc cgc tgg tgg gag gac cta						492
Gly His Asn Phe Cys Lys Ala Cys Ile Thr Arg Trp Trp Glu Asp Leu						
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Glu Arg Asp Phe Pro Cys Pro Val Cys Arg Lys Thr Ser Arg Tyr Arg						
61 66 71 76						
agt ctc cga cct aat cgg caa cta ggc agt atg gtg gaa att gcc aag						588
Ser Leu Arg Pro Asn Arg Gln Leu Gly Ser Met Val Glu Ile Ala Lys						
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Gln Leu Gln Ala Val Lys Arg Lys Ile Arg Asp Glu Ser Leu Cys Pro						
93 98 103 108						
caa cac cat gag gcc ctc agc ctt ttc tgt tat gag gac cag gag gct						684
Gln His His Glu Ala Leu Ser Leu Phe Cys Tyr Glu Asp Gln Glu Ala						
109 114 119 124						
gta tgc ttg ata tgt gca att tcc cac acc cac cgg gcc cac acc gtt						732
Val Cys Leu Ile Cys Ala Ile Ser His Thr His Arg Ala His Thr Val						
125 130 135 140						
gtg cca ctg gac gat gct aca cag gag tac aag gaa aaa ctg cag aag						780
Val Pro Leu Asp Asp Ala Thr Gln Glu Tyr Lys Glu Lys Leu Gln Lys						
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Cys Leu Glu Pro Leu Glu Gln Lys Leu Gln Glu Ile Thr Arg Cys Lys						
157 162 167 172						
tcc tct gag gag aag aag cct ggt gag ctc aag aga cta gtg gaa agt						876
Ser Ser Glu Glu Lys Lys Pro Gly Glu Leu Lys Arg Leu Val Glu Ser						

173	178	183	188	
cgc cga cag cag atc ttg agg gag ttt gaa gag ctt cat agg cgg ctg				924
Arg Arg Gln Gln Ile Leu Arg Glu Phe Glu Glu Leu His Arg Arg Leu				
189	194	199	204	
gat gaa gag cag cag gtg ttg ctt tca cga ctg gaa gaa gag gaa cag				972
Asp Glu Glu Gln Gln Val Leu Leu Ser Arg Leu Glu Glu Glu Glu Gln				
205	210	215	220	
gac att ctg cag cga ctc cga gaa aat gct gct cac ctt ggg gac aag				1020
Asp Ile Leu Gln Arg Leu Arg Glu Asn Ala Ala His Leu Gly Asp Lys				
221	226	231	236	
cgc cgg gac ctg gcc cac ttg gct gcc gag gtg gag ggc aag tgc tta				1068
Arg Arg Asp Leu Ala His Leu Ala Ala Glu Val Glu Gly Lys Cys Leu				
237	242	247	252	
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Gln Ser Gly Phe Glu Met Leu Lys Val Arg Pro Leu Pro Leu His Ser				
253	258	263	268	
ccc tca ggc tga gtg cagcgtagct ttgcgtagcc tgggatttgt cagcctggga				1171
Pro Ser Gly *				
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 cttccgcgac atg ttc acg ctg cgt ggg ctc ggc ggc cca ggc gcc att 169  
                   Met Phe Thr Leu Arg Gly Leu Gly Gly Pro Gly Ala Ile  
                   1                  5                  10  
 gca tgg atc agc cag gcc ttc gat gac gat tcc gcc ctg ctc aag cac 217  
 Ala Trp Ile Ser Gln Ala Phe Asp Asp Asp Ser Ala Leu Leu Lys His  
   14                  19                  24                  29  
 gag ctg gcc tac tgc ctg ggc cag atg cag gat gcc cgc gcc atc ccc 265  
 Glu Leu Ala Tyr Cys Leu Gly Gln Met Gln Asp Ala Arg Ala Ile Pro  
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 atg ctg gtg gac gtg ctg caa gac acc cgt cag gag ccc atg gtg cgc 313  
 Met Leu Val Asp Val Leu Gln Asp Thr Arg Gln Glu Pro Met Val Arg  
   46                  51                  56                  61  
 cat gag gca ggg gag gcc ctg ggg gcc atc ggg gac ccg gaa gtt ctg 361  
 His Glu Ala Gly Glu Ala Leu Gly Ala Ile Gly Asp Pro Glu Val Leu  
   62                  67                  72                  77  
 gag atc ctg aag cag tat tcc tcg gac ccc gtc atc gag gtg gcc gag 409  
 Glu Ile Leu Lys Gln Tyr Ser Ser Asp Pro Val Ile Glu Val Ala Glu  
   78                  83                  88                  93  
 acc tgc cag ctg gcc gtg cgc agg ctg gag tgg ctg cag cag cac ggc 457  
 Thr Cys Gln Leu Ala Val Arg Arg Leu Glu Trp Leu Gln Gln His Gly  
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 ggg gag ccg gcg gcg gga ccc tac ctc tcc gtg gac cct gcc ccg ccg 505  
 Gly Glu Pro Ala Ala Gly Pro Tyr Leu Ser Val Asp Pro Ala Pro Pro  
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 gct gag gag cgt gac gtg ggg cgc ctg cgg gag gcg ctg ctg gat gag 553  
 Ala Glu Glu Arg Asp Val Gly Arg Leu Arg Glu Ala Leu Leu Asp Glu  
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 Ser Arg Pro Leu Phe Glu Arg Tyr Arg Ala Met Phe Ala Leu Arg Asn  
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 gcg gga ggc gag gag gcc gcc ctg gcg ctg gcc gag ggt ctg cac tgt 649  
 Ala Gly Gly Glu Glu Ala Ala Leu Ala Leu Ala Glu Gly Leu His Cys  
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 Gly Ser Ala Leu Phe Arg His Glu Val Gly Tyr Val Leu Gly Gln Leu  
  174                  179                  184                  189

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Gln His Glu Ala Ala Val Pro Gln Leu Ala Ala Ala Leu Ala Arg Cys	
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Thr Glu Asn Pro Met Val Arg His Glu Cys Ala Glu Ala Leu Gly Ala	
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att gcc cgg ccc gcc tgc ctg gcc gcg ctg cag gct cac gcg gac gac	841
Ile Ala Arg Pro Ala Cys Leu Ala Ala Leu Gln Ala His Ala Asp Asp	
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Pro Glu Arg Val Val Arg Glu Ser Cys Glu Val Ala Leu Asp Met Tyr	
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Glu His Glu Thr Gly Arg Ala Phe Gln Tyr Ala Asp Gly Leu Glu Gln	
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Leu Arg Gly Ala Pro Ser *	
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Met Ser Asn Ser Asn	1
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Asn Asp Glu Arg Lys Lys Ala Leu Ile Ser Ser Arg Lys Thr Ser Thr	6 11 16 21
gaa tgt gca tct agt aca gaa aat tct ttc gtt gtc agc agt agt tca	1049
Glu Cys Ala Ser Ser Thr Glu Asn Ser Phe Val Val Ser Ser Ser Ser	22 27 32 37
gtt tct aat acc act gtt gct gga act ccc cca tac cct aca agt cgg	1097
Val Ser Asn Thr Thr Val Ala Gly Thr Pro Pro Tyr Pro Thr Ser Arg	38 43 48 53
agg caa acc ttt att act ttg gag aag ttt gat ggt tca gaa aat aga	1145
Arg Gln Thr Phe Ile Thr Leu Glu Lys Phe Asp Gly Ser Glu Asn Arg	54 59 64 69
cct ttt agt cca tcc ccc ttg aat aat att tca tca act gtt aca gtg	1193
Pro Phe Ser Pro Ser Pro Leu Asn Asn Ile Ser Ser Thr Val Thr Val	70 75 80 85



Leu Gln Glu Asn Leu Ile Glu Lys Gly Ser Asn Leu His Glu Lys Thr	
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ctt ggg gaa act agt gct aat gca gaa act gaa caa aat aaa aaa aag	1961
Leu Gly Glu Thr Ser Ala Asn Ala Glu Thr Glu Gln Asn Lys Lys Lys	
326 331 336 341	
gca gac cct gag aac att aag tct gag ggg gat ggt acc cag gac att	2009
Ala Asp Pro Glu Asn Ile Lys Ser Glu Gly Asp Gly Thr Gln Asp Ile	
342 347 352 357	
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Val Asp Lys Ser Ser Glu Lys Leu Val Arg Gly Arg Thr Arg Tyr Gln	
358 363 368 373	
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Thr Arg Arg Ala Ser Gln Gly Leu Leu Ser Ser Ile Glu Asn Ser Glu	
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Gly Lys Trp Lys Asn Lys Ser Asn Glu Ser Val Asp Ile Gln Asp Gln	
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Glu Glu Lys Val Val Lys Gln Glu Cys Ile Lys Ala Glu Asn Gln Ser	
422 427 432 437	
cat gat tat aaa gca act tct gaa gaa gat gta agc ata aaa tct ccg	2297
His Asp Tyr Lys Ala Thr Ser Glu Glu Asp Val Ser Ile Lys Ser Pro	
438 443 448 453	
att tgc gaa aaa caa gat gaa agt aat act gta ata tgt cag gat tct	2345
Ile Cys Glu Lys Gln Asp Glu Ser Asn Thr Val Ile Cys Gln Asp Ser	
454 459 464 469	
aca gta act tca gat ttg ttg caa gtt cct gat gat tta cca aat gtg	2393
Thr Val Thr Ser Asp Leu Leu Gln Val Pro Asp Asp Leu Pro Asn Val	
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Cys Glu Glu Lys Asn Glu Thr Ser Lys Tyr Ala Glu Tyr Ser Phe Thr	
486 491 496 501	
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Ser Leu Pro Val Pro Glu Ser Asn Leu Arg Thr Arg Asn Ala Ile Lys	
502 507 512 517	
aga tta cat aag cga gac tct ttt gat aat tgt agt ttg gga gaa tcc	2537
Arg Leu His Lys Arg Asp Ser Phe Asp Asn Cys Ser Leu Gly Glu Ser	
518 523 528 533	
tca aaa ata ggg ata tca gat att tct tcg ctt tca gaa aaa act ttt	2585
Ser Lys Ile Gly Ile Ser Asp Ile Ser Ser Leu Ser Glu Lys Thr Phe	

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ctc att ggg tta aag Leu Ile Gly Leu Lys 582	aat aca gaa aat aat Asn Thr Glu Asn Asn 587	gac gta gag att agt Asp Val Glu Ile Ser 592	gaa Glu 597	2729
aca aaa aag gca gat Thr Lys Lys Ala Asp 598	gtg caa gca cct gta Val Gln Ala Pro Val 603	agc cca tca gaa act Ser Pro Ser Glu Thr 608	tct Ser 613	2777
caa gct aat cca tat Gln Ala Asn Pro Tyr 614	tct gaa gga caa ttt Ser Glu Gly Gln Phe 619	tta gat gaa cat cat Leu Asp Glu His His 624	agt Ser 629	2825
gtg aat ttt cat ttg Val Asn Phe His Leu 630	ggg ctc aaa gag gat Gly Leu Lys Glu Asp 635	aat gat act att aat Asn Asp Thr Ile Asn 640	gat Asp 645	2873
tca tta att gtt tct Ser Leu Ile Val Ser 646	gaa acc aaa tca aaa Glu Thr Lys Ser Lys 651	gaa aac act atg caa Glu Asn Thr Met Gln 656	gaa Glu 661	2921
tct ctt cct tct gga Ser Leu Pro Ser Gly 662	ata gta aac ttt aga Ile Val Asn Phe Arg 667	gag gaa att tgt gat Glu Glu Ile Cys Asp 672	atg Met 677	2969
gat tct agt gaa gca Asp Ser Ser Glu Ala 678	atg tct ctt gaa agc Met Ser Leu Glu Ser 683	cag gag tca cct aat Gln Glu Ser Pro Asn 688	gaa Glu 693	3017
aat ttt aaa act gtt Asn Phe Lys Thr Val 694	ggc ccg tgt tta gga Gly Pro Cys Leu Gly 699	gac tcg aaa aat gtt Asp Ser Lys Asn Val 704	tca Ser 709	3065
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gta aca gaa tcc aat Val Thr Glu Ser Asn 742	cta gag aaa gca aaa Leu Glu Lys Ala Lys 747	act atg gaa ttg aat Thr Met Glu Leu Asn 752	gta Val 757	3209
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gca gac aca gct aaa ctg aat gcc aaa gaa gta gca act gag gaa ttt	3353
Ala Asp Thr Ala Lys Leu Asn Ala Lys Glu Val Ala Thr Glu Glu Phe	
790 795 800 805	
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Asn Ser Asp Ile Ser Leu Ser Asp Asn Thr Thr Pro Val Lys Leu Asn	
806 811 816 821	
gct caa act gag att tct gaa caa aca gca gct ggg gaa cta gat gga	3449
Ala Gln Thr Glu Ile Ser Glu Gln Thr Ala Ala Gly Glu Leu Asp Gly	
822 827 832 837	
gga aat gat gta tct gat cta cac tca tct gaa gaa acg aat acc aaa	3497
Gly Asn Asp Val Ser Asp Leu His Ser Ser Glu Glu Thr Asn Thr Lys	
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Met Lys Asn Tyr Glu Glu Met Met Ile Gly Glu Ala Met Ala Glu Thr	
854 859 864 869	
ggc cat gat ggt gaa aca gag aat gag ggc ata act acc aaa acc tca	3593
Gly His Asp Gly Glu Thr Glu Asn Glu Gly Ile Thr Thr Lys Thr Ser	
870 875 880 885	
aag cct gat gaa gct gaa aca aac atg ttg act gca gaa atg gac aac	3641
Lys Pro Asp Glu Ala Glu Thr Asn Met Leu Thr Ala Glu Met Asp Asn	
886 891 896 901	
ttt gtt tgt gac aca gtt gaa atg agc act gaa gaa gga atc att gac	3689
Phe Val Cys Asp Thr Val Glu Met Ser Thr Glu Glu Gly Ile Ile Asp	
902 907 912 917	
gct aat aaa act gaa aca aat act gag tat agt aaa tct gaa gaa aaa	3737
Ala Asn Lys Thr Glu Thr Asn Thr Glu Tyr Ser Lys Ser Glu Glu Lys	
918 923 928 933	
tta gat aac aat caa atg gta atg gaa agt gat att tta cag gaa gat	3785
Leu Asp Asn Asn Gln Met Val Met Glu Ser Asp Ile Leu Gln Glu Asp	
934 939 944 949	
cac cat act tca cag aaa gtg gag gaa cca tca cag tgt ctg gca tct	3833
His His Thr Ser Gln Lys Val Glu Glu Pro Ser Gln Cys Leu Ala Ser	
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Gly Thr Ala Ile Ser Glu Leu Ile Ile Glu Asp Asn Asn Ala Ser Pro	
966 971 976 981	
caa aaa cta agg gaa ctt gat cct tca ctt gtg tca gca aat gac agt	3929
Gln Lys Leu Arg Glu Leu Asp Pro Ser Leu Val Ser Ala Asn Asp Ser	
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Pro Ser Gly Met Gln Thr Arg Cys Val Trp Ser Pro Leu Ala Ser Pro	
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Ser Thr Ser Ile Leu Lys Arg Gly Leu Lys Arg Ser Gln Glu Asp Glu	
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Ile Tyr Gln Ala Gly Leu Ala Asp Asp Ile Asp Arg Arg Cys Ser Ile	
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Val Arg Ser His Ser Ser Asn Ser Ser Pro Ile Gly Lys Ser Val Lys	
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Thr Ser Pro Thr Thr Gln Ser Lys His Asn Thr Thr Ser Ala Lys Gly	
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Cys Leu Ile Ser Glu Met Ala Lys Glu Ser Ile Pro Cys Pro Thr Glu	
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Met Thr Asp  
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Phe Glu Gly Arg Lys Glu Ile Trp Asp Ala Leu Lys Ala Ala Ala Tyr  
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Ala Ala Glu Ala Asn Asp His Glu Leu Ala Gln Ala Ile Leu Asp Gly  
36 41 46 51  
gcc agc atc acc ctg cct cat ggc acc ctc tgt gaa tgc tac gat gag 547  
Ala Ser Ile Thr Leu Pro His Gly Thr Leu Cys Glu Cys Tyr Asp Glu  
52 57 62 67  
ctg ggc aat cgc tac cag ctg ccc atc tac tgc ctg tca ccg ccg gtg 595  
Leu Gly Asn Arg Tyr Gln Leu Pro Ile Tyr Cys Leu Ser Pro Pro Val  
68 73 78 83

aac ctg ctg ctg gag cac acg gag gag gag agc ctg gag ccc ccc gag	643
Asn Leu Leu Leu Glu His Thr Glu Glu Glu Ser Leu Glu Pro Pro Glu	
84 89 94 99	
cct cca ccc agc gtg cgc cgt gag ttc ccg ctg aag gtg cgc ctg tcc	691
Pro Pro Pro Ser Val Arg Arg Glu Phe Pro Leu Lys Val Arg Leu Ser	
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Thr Gly Lys Asp Val Arg Leu Ser Ala Ser Leu Pro Asp Thr Val Gly	
116 121 126 131	
cag ctc aag agg cag ctg cac gcc cag gag ggc atc gag cca tgc tgg	787
Gln Leu Lys Arg Gln Leu His Ala Gln Glu Gly Ile Glu Pro Ser Trp	
132 137 142 147	
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Gln Arg Trp Phe Phe Ser Gly Lys Leu Leu Thr Asp Arg Thr Arg Leu	
148 153 158 163	
cag gag acc aag atc cag aaa gat ttt gtc atc cag gtc atc atc aac	883
Gln Glu Thr Lys Ile Gln Lys Asp Phe Val Ile Gln Val Ile Ile Asn	
164 169 174 179	
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Gln Pro Pro Pro Pro Gln Asp *	
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Thr	Ala	Phe	Ser	Met	Leu	Cys	Leu	Gly	Ala	Gln	Asp	Ser	Thr	Leu	Asp		
81					86					91					96		
gag	atc	aag	cag	ggg	ttc	aac	ttc	aga	aag	atg	cca	gaa	aaa	gat	ctt	696	
Glu	Ile	Lys	Gln	Gly	Phe	Asn	Phe	Arg	Lys	Met	Pro	Glu	Lys	Asp	Leu		
97					102					107					112		
cat	gag	ggc	ttc	cat	tac	atc	atc	cac	gag	ctg	acc	cag	aag	acc	cag	744	
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gac	ctc	aaa	ctg	agc	att	ggg	aac	acg	ctg	ttc	att	gac	cag	agg	ctg	792	
Asp	Leu	Lys	Leu	Ser	Ile	Gly	Asn	Thr	Leu	Phe	Ile	Asp	Gln	Arg	Leu		
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Gln	Pro	Gln	Arg	Lys	Phe	Leu	Glu	Asp	Ala	Lys	Asn	Phe	Tyr	Ser	Ala		
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Glu	Thr	Ile	Leu	Thr	Asn	Phe	Gln	Asn	Leu	Glu	Met	Ala	Gln	Lys	Gln		
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Cys	Thr	Ile	Leu	Glu	Ile	Pro	Tyr	Gln	Lys	Asn	Ile	Thr	Ala	Ile	Phe		
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Val Asp Thr Phe Ser Arg Trp Lys Thr Leu Leu Ser Arg Arg Val Val				
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Asp Val Ser Val Pro Arg Leu His Met Thr Gly Thr Phe Asp Leu Lys				
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Lys Thr Leu Ser Tyr Ile Gly Val Ser Lys Ile Phe Glu Glu His Gly				
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Asp Leu Thr Lys Ile Ala Pro His Arg Ser Leu Lys Val Gly Glu Ala				
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Val Asn Lys Ala Glu Leu Lys Met Asp Glu Arg Gly Thr Glu Gly Ala				
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gct ggc acc gga gca cag act ctg ccc atg gag aca cca ctc gtc gtc				1512
Ala Gly Thr Gly Ala Gln Thr Leu Pro Met Glu Thr Pro Leu Val Val				
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Lys Ile Asp Lys Pro Tyr Leu Leu Leu Ile Tyr Ser Glu Lys Ile Pro				
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acatcctctg agacagaaac agcatccact gtgggatctg aagaaaccat catccagacc	240

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Asn Leu Tyr Ile Ile Gln Asn Asn Ser Phe Ser Gln Ser Leu Ala Thr  
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33 38 43 48

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81 86 91 96

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Thr Ser Glu Leu Arg Ser Glu Lys Leu Glu Thr Asp Cys Glu His Val  
97 102 107 112

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Gln Pro Pro Gln Trp Leu Gln Thr Leu Met Asn Ala Cys Ser Gln Ala  
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129 134 139 144

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Val Gly Leu Thr Gln Ser Val Ala Met Val Thr Gly Glu Asn Ile Asn  
145 150 155 160

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Ser Val Glu Pro Ala Gln Pro Leu Ser Pro Asn Gln Gly Arg Val Ala  
161 166 171 176

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Val Val Ile Arg Pro Pro Leu Thr Gln Gly Asn Leu Arg Tyr Ile Ala  
177 182 187 192

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193 198 203 208

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209 214 219 224

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His	Ala	Lys	Phe	Ala	Val	Leu	Trp	His	Leu	Thr	Arg	Asp	Leu	His	Ile	
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Met	Leu	Asp	Ser	Leu	Asn	Ser	Leu	Asp	Gly	Ser	Thr	Ser	Ser	Val	Gly	
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Gln	Ala	Trp	Leu	Asn	Gln	Val	Leu	Gln	Arg	His	Asp	Ile	Ala	Arg	Val	
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Leu	Glu	Pro	Leu	Leu	Leu	Leu	Leu	Leu	His	Pro	Lys	Thr	Gln	Arg	Val	
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Tyr	Pro	Gly	Glu	Glu	Ser	Asp	Lys	His	Phe	Met	Gln	Asn	Phe	Ala	Cys	
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Pro	Leu	Ser	Asp	Arg	Leu	Ser	Leu	Leu	Ser	Thr	Ser	Ser	Glu	Thr	Ile	
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cca	atg	gtt	gtg	tct	gat	ttt	gat	ctt	cca	gac	caa	cag	ata	gaa	ata	1596
Pro	Met	Val	Val	Ser	Asp	Phe	Asp	Leu	Pro	Asp	Gln	Gln	Ile	Glu	Ile	
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Leu	Gln	Ser	Ser	Asp	Ser	Gly	Cys	Ser	Gln	Ser	Ser	Ala	Gly	Asp	Asn	
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Glu Ser Asp Met Gly Ser Pro Gly Ser Arg Lys Ser Pro Asn Phe Asn	
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Ile His Pro Leu Tyr Gln His Val Leu Leu Tyr Leu Gln Leu Tyr Asp	
689 694 699 704	
tca tcc agg act ttg tat gct ttc tct gcc atc aaa gcc atc ttg aaa	2460
Ser Ser Arg Thr Leu Tyr Ala Phe Ser Ala Ile Lys Ala Ile Leu Lys	
705 710 715 720	
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Thr Asn Pro Ile Ala Phe Val Asn Ala Ile Ser Thr Thr Ser Val Asn	
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Asn Ala Tyr Thr Pro Gln Leu Ser Leu Leu Gln Asn Leu Leu Ala Arg	
737 742 747 752	
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His Arg Ile Ser Val Met Gly Lys Asp Phe Tyr Ser His Ile Pro Val	
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Ser Leu Cys Leu Tyr Tyr Met Arg Ser His Tyr Pro Thr His Val Lys	
785 790 795 800	
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Val Thr Ala Gln Asp Leu Ile Gly Asn Arg Asn Met Gln Met Met Ser	
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Ile Glu Ile Leu Thr Leu Leu Phe Thr Glu Leu Ala Lys Val Ile Glu	
817 822 827 832	
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Ser Ser Ala Lys Gly Phe Pro Ser Phe Ile Ser Asp Met Leu Ser Lys	
833 838 843 848	
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Cys Lys Val Gln Lys Val Ile Leu His Cys Leu Leu Ser Ser Ile Phe	
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Ala Val Glu Glu Gly Phe Ser Glu Asp Ser Leu Ile Asn Phe Ser Glu	
881 886 891 896	
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Asp Glu Phe Asp Asn Gly Ser Thr Leu Gln Ser Gln Leu Leu Lys Val	

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Leu Gln Arg Leu Ile Val Leu Glu His Arg Val Met Thr Ile Pro Glu				
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Glu Asn Glu Thr Gly Phe Asp Phe Val Val Ser Asp Leu Glu His Ile				
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Ser Pro His Gln Pro Met Thr Ser Leu Gln Tyr Leu His Ala Gln Pro				
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Ile Thr Cys Gln Gly Met Phe Leu Cys Ala Val Ile Arg Ala Leu His				
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cag cac tgt gca tgt aag atg cac cca caa tgg att ggt tta atc aca				3276
Gln His Cys Ala Cys Lys Met His Pro Gln Trp Ile Gly Leu Ile Thr				
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Ser Thr Leu Pro Tyr Met Gly Lys Val Leu Gln Arg Val Val Val Ser				
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Val Thr Leu Gln Leu Cys Arg Asn Leu Asp Asn Leu Ile Gln Gln Tyr				
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Lys Tyr Glu Thr Gly Leu Ser Asp Ser Arg Pro Leu Trp Met Ala Ser				
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Leu Val Ser Val Asp Gln Lys His Leu Phe Glu Ala Arg Ser Gly Ile				
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Ala Ser Leu Thr Thr Ile Asn Leu Gly Ala Thr Lys Asn Leu Arg Gln				
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Tyr Ala Tyr Ile Gln Arg Ile Pro Val Pro Asn Leu Val Asp Ser Trp	
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Ala Ser Leu Leu Ile Leu Leu Lys Asp Ser Ile Gln Leu Ser Leu Pro	
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Ala Pro Gly Gln Phe Leu Ile Leu Gly Val Leu Asn Glu Phe Ile Met	
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Lys Asn Pro Ser Leu Glu Asn Lys Lys Asp Gln Arg Asp Leu Gln Asp	
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Pro Lys Ile Met Val Asp Gly Thr Asn Leu Glu Ser Asp Val Glu Asp	
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Leu Lys Arg Leu Ala Phe Ala Ile Phe Ser Ser Glu Ile Asp Gln Tyr	
1505 1510 1515 1520	
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Gln Lys Tyr Leu Pro Asp Ile Gln Glu Arg Leu Val Glu Ser Leu Arg	
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Leu Pro Gln Val Pro Thr Leu His Ser Gln Val Phe Leu Phe Phe Arg	
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Val Leu Leu Leu Arg Met Ser Pro Gln His Leu Thr Ser Leu Trp Pro	
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acc atg att aca gaa ctt gta caa gta ttt tta ctg atg gag cag gaa	5052
Thr Met Ile Thr Glu Leu Val Gln Val Phe Leu Leu Met Glu Gln Glu	
1569 1574 1579 1584	
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ccttccgtag tcaactcaggg gacagcaacc cgaagtagga agacagccca aaagactgca	300
atg cag tgc tgc ttg gag tat gtc caa cag ttt ctt acc aga ctt atc	348
Met Gln Cys Cys Leu Glu Tyr Val Gln Gln Phe Leu Thr Arg Leu Ile	
1 5 10 15	
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Asn Leu Tyr Ile Ile Gln Asn Asn Ser Phe Ser Gln Ser Leu Ala Thr	
17 22 27 32	
gaa cat caa ggg gat ctt ggt cga gaa caa gga gag act tca aaa tgg	444
Glu His Gln Gly Asp Leu Gly Arg Glu Gln Gly Glu Thr Ser Lys Trp	
33 38 43 48	
gac aga aat tca caa gga gat gta aaa gag aaa aac ata agt aaa caa	492
Asp Arg Asn Ser Gln Gly Asp Val Lys Glu Lys Asn Ile Ser Lys Gln	
49 54 59 64	
aaa act tct aaa gaa tac ctg tct gcc ttc ctt gct gcc tgt cag ctc	540
Lys Thr Ser Lys Glu Tyr Leu Ser Ala Phe Leu Ala Ala Cys Gln Leu	
65 70 75 80	
ttc cta gag tgc tca agt ttc cca gtt tac att gct gag ggg aac cat	588
Phe Leu Glu Cys Ser Ser Phe Pro Val Tyr Ile Ala Glu Gly Asn His	
81 86 91 96	
aca tca gag tta cgt tct gaa aaa ttg gag act gac tgt gag cat gtg	636
Thr Ser Glu Leu Arg Ser Glu Lys Leu Glu Thr Asp Cys Glu His Val	

97	102	107	112	
cag cct cca cag tgg	ctc cag act ctg atg	aat gct tgc agc caa gca		684
Gln Pro Pro Gln Trp	Leu Gln Thr Leu Met	Asn Ala Cys Ser Gln Ala		
113	118	123	128	
agt gat ttc agt gtt	cag agt gtt gct att	tca cta gtt atg gac ctg		732
Ser Asp Phe Ser Val	Gln Ser Val Ala Ile	Ser Leu Val Met Asp Leu		
129	134	139	144	
gtg gga ctg aca cag	tct gtg gcc atg gtc	act ggg gaa aac atc aac		780
Val Gly Leu Thr Gln	Ser Val Ala Met Val	Thr Gly Glu Asn Ile Asn		
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agt gta gag cct gca	caa ccc tta agt cca	aac cag gga aga gta gct		828
Ser Val Glu Pro Ala	Gln Pro Leu Ser Pro	Asn Gln Gly Arg Val Ala		
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gtg gtt att aga cct	ccc ctc act cag ggc	aat ctg agg tac ata gct		876
Val Val Ile Arg Pro	Pro Leu Thr Gln Gly	Asn Leu Arg Tyr Ile Ala		
177	182	187	192	
gag aag act gaa ttt	ttc aag cat gta gct	tta aca ttg tgg gac cag		924
Glu Lys Thr Glu Phe	Phe Lys His Val Ala	Leu Thr Leu Trp Asp Gln		
193	198	203	208	
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Leu Gly Asp Gly Thr	Pro Gln His His Gln	Lys Ser Val Glu Leu Phe		
209	214	219	224	
tat caa tta cat aac	tta gtt cct tct tct	agc atc tgt gag gat gtt		1020
Tyr Gln Leu His Asn	Leu Val Pro Ser Ser	Ser Ile Cys Glu Asp Val		
225	230	235	240	
ata agt cag cag tta	acc cat aaa gat aag	aaa ata agg atg gaa gca		1068
Ile Ser Gln Gln Leu	Thr His Lys Asp Lys	Lys Ile Arg Met Glu Ala		
241	246	251	256	
cat gcc aag ttt gca	gtt ctt tgg cat cta	acg aga gat ctc cat ata		1116
His Ala Lys Phe Ala	Val Leu Trp His Leu	Thr Arg Asp Leu His Ile		
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Asn Lys Ser Ser Ser	Phe Val Arg Ser Phe	Asp Arg Ser Leu Phe Ile		
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Met Leu Asp Ser Leu	Asn Ser Leu Asp Gly	Ser Thr Ser Ser Val Gly		
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Gln Ala Trp Leu Asn	Gln Val Leu Gln Arg	His Asp Ile Ala Arg Val		
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ttg gaa cca ttg cta	ttg ctc ctg ctt cat	cca aaa act cag agg gtt		1308
Leu Glu Pro Leu Leu	Leu Leu Leu Leu His	Pro Lys Thr Gln Arg Val		
321	326	331	336	

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Ser Val Gln Arg Val Gln Ala Glu Arg Tyr Trp Asn Lys Ser Pro Cys	
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Tyr Pro Gly Glu Glu Ser Asp Lys His Phe Met Gln Asn Phe Ala Cys	
353 358 363 368	
agc aat gtg agc caa gta caa ctc atc aca tca aaa gga aat ggt gaa	1452
Ser Asn Val Ser Gln Val Gln Leu Ile Thr Ser Lys Gly Asn Gly Glu	
369 374 379 384	
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Lys Pro Leu Thr Met Asp Glu Ile Glu Asn Phe Ser Leu Thr Val Asn	
385 390 395 400	
cca tta agt gac aga ctt tcc ctc cta agt acc agc agt gag aca att	1548
Pro Leu Ser Asp Arg Leu Ser Leu Leu Ser Thr Ser Ser Glu Thr Ile	
401 406 411 416	
cca atg gtt gtg tct gat ttt gat ctt cca gac caa cag ata gaa ata	1596
Pro Met Val Val Ser Asp Phe Asp Leu Pro Asp Gln Gln Ile Glu Ile	
417 422 427 432	
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Leu Gln Ser Ser Asp Ser Gly Cys Ser Gln Ser Ser Ala Gly Asp Asn	
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497 502 507 512	
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513 518 523 528	
cga cag agt cag aat gct ttg ctg agt aat gaa agt tct cag ttt ctg	1932
Arg Gln Ser Gln Asn Ala Leu Leu Ser Asn Glu Ser Ser Gln Phe Leu	
529 534 539 544	
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Ser Val Ser Ala Glu Gly Gly His Glu Cys Val Ala Asn Gly Ile Ser	
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Arg Asn Ser Ser Ser Pro Cys Ile Ser Gly Thr Thr His Thr Leu His	
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Asp Ser Ser Val Ala Ser Ile Glu Thr Lys Ser Arg Gln Arg Ser His	
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Ser Ser Ile Gln Phe Ser Phe Lys Glu Lys Leu Ser Glu Lys Val Ser	
593 598 603 608	
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Glu Lys Glu Thr Ile Val Lys Glu Ser Gly Lys Gln Pro Gly Ala Lys	
609 614 619 624	
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Pro Lys Val Lys Leu Ala Arg Lys Lys Asp Asp Asp Lys Lys Lys Ser	
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Ile His Pro Leu Tyr Gln His Val Leu Leu Tyr Leu Gln Leu Tyr Asp	
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Asn Ala Tyr Thr Pro Gln Leu Ser Leu Leu Gln Asn Leu Leu Ala Arg	
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His Arg Ile Ser Val Met Gly Lys Asp Phe Tyr Ser His Ile Pro Val	
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Asp Ser Asn His Asn Phe Arg Ser Ser Met Tyr Ile Glu Ile Leu Ile	
769 774 779 784	
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Val	Thr	Ala	Gln	Asp	Leu	Ile	Gly	Asn	Arg	Asn	Met	Gln	Met	Met	Ser	
801					806					811					816	
ata	gaa	att	ctg	aca	cta	ctc	ttc	act	gag	ctg	gca	aaa	gta	ata	gaa	2796
Ile	Glu	Ile	Leu	Thr	Leu	Leu	Phe	Thr	Glu	Leu	Ala	Lys	Val	Ile	Glu	
817					822					827					832	
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Ser	Ser	Ala	Lys	Gly	Phe	Pro	Ser	Phe	Ile	Ser	Asp	Met	Leu	Ser	Lys	
833					838					843					848	
tgc	aaa	gtt	cag	aaa	gtg	att	ctt	cat	tgt	ttg	ctg	tca	tct	atc	ttt	2892
Cys	Lys	Val	Gln	Lys	Val	Ile	Leu	His	Cys	Leu	Leu	Ser	Ser	Ile	Phe	
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Ser	Ala	Gln	Lys	Trp	His	Ser	Glu	Lys	Met	Ala	Gly	Lys	Asn	Leu	Val	
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gct	gtg	gaa	gaa	ggt	ttc	tca	gag	gac	agc	ctt	att	aat	ttc	tca	gag	2988
Ala	Val	Glu	Glu	Gly	Phe	Ser	Glu	Asp	Ser	Leu	Ile	Asn	Phe	Ser	Glu	
881					886					891					896	
gat	gaa	ttt	gac	aat	ggc	agc	acg	ttg	cag	tca	caa	ctt	ctt	aag	gtg	3036
Asp	Glu	Phe	Asp	Asn	Gly	Ser	Thr	Leu	Gln	Ser	Gln	Leu	Leu	Lys	Val	
897					902					907					912	
ctt	cag	agg	ctg	att	gtt	cta	gaa	cac	aga	gta	atg	act	att	cct	gaa	3084
Leu	Gln	Arg	Leu	Ile	Val	Leu	Glu	His	Arg	Val	Met	Thr	Ile	Pro	Glu	
913					918					923					928	
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Glu	Asn	Glu	Thr	Gly	Phe	Asp	Phe	Val	Val	Ser	Asp	Leu	Glu	His	Ile	
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Ser	Pro	His	Gln	Pro	Met	Thr	Ser	Leu	Gln	Tyr	Leu	His	Ala	Gln	Pro	
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Ile	Thr	Cys	Gln	Gly	Met	Phe	Leu	Cys	Ala	Val	Ile	Arg	Ala	Leu	His	
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cag	cac	tgt	gca	tgt	aag	atg	cac	cca	caa	tgg	att	ggt	tta	atc	aca	3276
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977					982					987					992	
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Ser	Thr	Leu	Pro	Tyr	Met	Gly	Lys	Val	Leu	Gln	Arg	Val	Val	Val	Ser	
993					998					1003					1008	
gtg	aca	cta	caa	ctg	tgc	aga	aat	tta	gat	aat	cta	att	cag	cag	tac	3372
Val	Thr	Leu	Gln	Leu	Cys	Arg	Asn	Leu	Asp	Asn	Leu	Ile	Gln	Gln	Tyr	

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Lys Tyr Glu Thr Gly Leu Ser Asp Ser Arg Pro Leu Trp Met Ala Ser				
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Ile Ile Pro Pro Asp Met Ile Leu Thr Leu Leu Glu Gly Ile Thr Ala				
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Ile Ile His Tyr Cys Leu Leu Asp Pro Thr Thr Gln Tyr His Gln Leu				
1057	1062	1067	1072	
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Leu Val Ser Val Asp Gln Lys His Leu Phe Glu Ala Arg Ser Gly Ile				
1073	1078	1083	1088	
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Leu Ser Ile Leu His Met Ile Met Ser Ser Val Thr Leu Leu Trp Ser				
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Ile Leu His Gln Ala Asp Ser Ser Glu Lys Met Thr Ile Ala Ala Ser				
1105	1110	1115	1120	
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Ala Ser Leu Thr Thr Ile Asn Leu Gly Ala Thr Lys Asn Leu Arg Gln				
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Gln Ile Leu Glu Leu Leu Gly Pro Ile Ser Met Asn His Gly Val His				
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Thr Thr Thr Arg Thr Lys Val Ile Pro Ala Ala Ser Glu Glu Gln Leu				
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Leu Leu Val Glu Leu Val Arg Ser Ile Ser Val Met Arg Ala Glu Thr				
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Val Ile Gln Thr Val Lys Glu Val Leu Lys Gln Pro Pro Ala Ile Ala				
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Lys Asp Lys Lys His Leu Ser Leu Glu Val Cys Met Leu Gln Phe Phe				
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Tyr Ala Tyr Ile Gln Arg Ile Pro Val Pro Asn Leu Val Asp Ser Trp				
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Ala Ser Leu Leu Ile Leu Leu Lys Asp Ser Ile Gln Leu Ser Leu Pro	
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Ala Pro Gly Gln Phe Leu Ile Leu Gly Val Leu Asn Glu Phe Ile Met	
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Lys Asn Pro Ser Leu Glu Asn Lys Lys Asp Gln Arg Asp Leu Gln Asp	
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Pro Lys Ile Met Val Asp Gly Thr Asn Leu Glu Ser Asp Val Glu Asp	
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Asp Met Val Phe Tyr Ser Asp Glu Lys Glu Arg Val Ile Pro Leu Leu	
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Arg Ala Ile Met Asp Asn Leu Met Thr His Asp Lys Thr Thr Phe Arg	
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Phe Ala Asn Arg Asp Val Glu Leu Glu Gln Arg Ala Met Leu Leu Lys	
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Arg Leu Ala Phe Ala Ile Phe Ser Ser Glu Ile Asp Gln Tyr Gln Lys	
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Tyr Leu Pro Asp Ile Gln Glu Arg Leu Val Glu Ser Leu Arg Leu Pro	
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Glu Thr Thr Tyr Thr Gly Gly Asn Gly Phe Ser Thr Ser Tyr Asn Ser	
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Ser Leu Thr Leu His	Arg Arg Trp His Ser	Arg Glu Lys Ala Tyr	Lys	
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Cys Asp Glu Cys Gly	Lys Ala Phe Thr Trp	Ser Thr Asn Leu Leu	Glu	
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Gly Lys Ala Phe Ser	Cys His Ser Ser Leu	Asn Val His Gln Arg	Ile	
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His Thr Gly Glu Arg	Pro Tyr Lys Cys Ser	Ala Cys Glu Lys Ala	Phe	
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Ser Cys Ser Ser Leu	Leu Ser Met His Leu	Arg Val His Thr Gly	Glu	
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Lys Pro Tyr Arg Cys	Gly Glu Cys Gly Lys	Ala Phe Asn Gln Arg	Thr	
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His Leu Thr Arg His	His Arg Ile His Thr	Gly Glu Lys Pro Tyr	Gln	
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Cys Gly Ser Cys Gly	Lys Ala Phe Thr Cys	His Ser Ser Leu Thr	Val	
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cat gag aag atc cac	agc ggg gac aag cgg	ttc aag tgc agc gac	tgc	2378
His Glu Lys Ile His	Ser Gly Asp Lys Pro	Phe Lys Cys Ser Asp	Cys	
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351	356	361	366	

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Gly Arg Ala Phe Ser Gln Asn His Cys Leu Ile Lys His Gln Lys Ile	
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Asn Trp Ser Ser His Leu Thr Glu His Gln Arg Leu His Ser Glu Gly	
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Lys Pro Leu Ala Ile Gln Phe Asn Lys His Leu Leu Ser Thr Tyr Tyr	
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Val Pro Gly Ser Leu Leu Gly Ala Gly Asp Ala Gly Leu Arg Asp Val	
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Asp Pro Ile Asp Ala Leu Asp Val Ala Lys Leu Leu Cys Val Val Pro	
543 548 553 558	
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 ctaagtggct tgcttgagtt gacacaggga gctccaggac tcacctcag ctgagccacc 360  
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 Pro Val Gly Asp Gly Ala Gln Pro Met Ala Ala Met Gly Gly Leu Lys  
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 Val Leu Leu His Trp Ala Gly Pro Gly Gly Gly Glu Pro Trp Val Thr  
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Phe Ser Glu Ser Ser Leu Thr Ala Glu Glu Val Cys Ile His Ile Ala	
46 51 56 61	
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His Lys Val Gly Ile Thr Pro Pro Cys Phe Asn Leu Phe Ala Leu Phe	
62 67 72 77	
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Asp Ala Gln Ala Gln Val Trp Leu Pro Pro Asn His Ile Leu Glu Ile	
78 83 88 93	
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Pro Arg Asp Ala Ser Leu Met Leu Tyr Phe Arg Ile Arg Phe Tyr Phe	
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Arg Asn Trp His Gly Met Asn Pro Arg Glu Pro Ala Val Tyr Arg Cys	
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Gly Pro Pro Gly Thr Glu Ala Ser Ser Asp Gln Thr Ala Gln Gly Met	
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Gln Leu Leu Asp Pro Ala Ser Phe Glu Tyr Leu Phe Glu Gln Gly Lys	
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His Glu Phe Val Asn Asp Val Ala Ser Leu Trp Glu Leu Ser Thr Glu	
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Glu Glu Ile His His Phe Lys Asn Glu Ser Leu Gly Met Ala Phe Leu	
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His Leu Cys His Leu Ala Leu Arg His Gly Ile Pro Leu Glu Glu Val	
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Ser Ser His Tyr Leu Cys His Glu Val Ala Pro Pro Arg Leu Val Met	
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gcc ttc tac gag aca Ala Phe Tyr Glu Thr 654	gcc agc ctc atg agc Ala Ser Leu Met Ser 659	cag gtc tcc cac acg Gln Val Ser His Thr 664	cac His 669	2377
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gtg aca gag tac gtg Val Thr Glu Tyr Val 686	gag cac gga ccc ctg Glu His Gly Pro Leu 691	gat gtg tgg ctg cgg Asp Val Trp Leu Arg 696	agg Arg 701	2473
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Asn Val Cys Gly Arg Asn Ile Leu Leu Ala Arg Leu Gly Leu Ala Glu	
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Met Ala Ser  
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gag ggg ccg cgg gag ccc gaa agc gag ggc atc aag tta tca gca gat 165  
Glu Gly Pro Arg Glu Pro Glu Ser Glu Gly Ile Lys Leu Ser Ala Asp  
4 9 14 19

gtc aaa cca ttt gtc ccc aga ttt gcc ggg ctc aat gtg gca tgg tta 213  
Val Lys Pro Phe Val Pro Arg Phe Ala Gly Leu Asn Val Ala Trp Leu  
20 25 30 35

gag tcc tca gaa gca tgt gtc ttc ccc agc tct gca gcc aca tac tat 261  
Glu Ser Ser Glu Ala Cys Val Phe Pro Ser Ser Ala Ala Thr Tyr Tyr  
36 41 46 51

ccg ttt gtt cag gaa cca cca gtg aca gag cag aaa ata tat act gaa 309  
Pro Phe Val Gln Glu Pro Pro Val Thr Glu Gln Lys Ile Tyr Thr Glu  
52 57 62 67

gac atg gcc ttt gga gct tca act ttt cca cct cag tat tta tct tct 357  
Asp Met Ala Phe Gly Ala Ser Thr Phe Pro Pro Gln Tyr Leu Ser Ser  
68 73 78 83

gag ata act ctt cat cca tat gcc tat tct cct tat acc ctt gac tcc 405  
Glu Ile Thr Leu His Pro Tyr Ala Tyr Ser Pro Tyr Thr Leu Asp Ser  
84 89 94 99

aca cag aat gtt tac tca gtg cct ggc tcc cag tat ctt tat aac caa 453  
Thr Gln Asn Val Tyr Ser Val Pro Gly Ser Gln Tyr Leu Tyr Asn Gln  
100 105 110 115

ccc agt tgt tac cga ggt ttt caa aca gtg aag cat cga aat gag aac 501  
Pro Ser Cys Tyr Arg Gly Phe Gln Thr Val Lys His Arg Asn Glu Asn  
116 121 126 131

aca tgc cct ctc cca caa gaa atg aaa gct ctg ttt aag aag aaa acc 549

Thr	Cys	Pro	Leu	Pro	Gln	Glu	Met	Lys	Ala	Leu	Phe	Lys	Lys	Lys	Thr		
132					137					142					147		
tat	gat	gag	aaa	aaa	acg	tat	gat	cag	caa	aag	ttt	gac	agt	gaa	agg	597	
Tyr	Asp	Glu	Lys	Lys	Thr	Tyr	Asp	Gln	Gln	Lys	Phe	Asp	Ser	Glu	Arg		
148					153					158					163		
gct	gat	gga	act	ata	tca	tct	gag	ata	aaa	tca	gct	aga	ggt	tca	cat	645	
Ala	Asp	Gly	Thr	Ile	Ser	Ser	Glu	Ile	Lys	Ser	Ala	Arg	Gly	Ser	His		
164					169					174					179		
cat	ttg	tcc	att	tac	gct	gag	aat	agt	ttg	aaa	tca	gat	ggt	tac	cat	693	
His	Leu	Ser	Ile	Tyr	Ala	Glu	Asn	Ser	Leu	Lys	Ser	Asp	Gly	Tyr	His		
180					185					190					195		
aag	cga	aca	gac	agg	aaa	tcc	aga	atc	att	gca	aaa	aat	gta	tct	acc	741	
Lys	Arg	Thr	Asp	Arg	Lys	Ser	Arg	Ile	Ile	Ala	Lys	Asn	Val	Ser	Thr		
196					201					206					211		
tcc	aaa	cct	gag	ttt	gaa	ttt	acc	aca	ctg	gac	ttt	cct	gaa	ctg	caa	789	
Ser	Lys	Pro	Glu	Phe	Glu	Phe	Thr	Thr	Leu	Asp	Phe	Pro	Glu	Leu	Gln		
212					217					222					227		
ggt	gca	gag	aac	aat	atg	tca	gag	ata	cag	aag	caa	ccc	aag	tgg	gga	837	
Gly	Ala	Glu	Asn	Asn	Met	Ser	Glu	Ile	Gln	Lys	Gln	Pro	Lys	Trp	Gly		
228					233					238					243		
cct	gtc	cac	tct	gtc	tct	acc	gac	att	tct	ctt	cta	aga	gaa	gta	gta	885	
Pro	Val	His	Ser	Val	Ser	Thr	Asp	Ile	Ser	Leu	Leu	Arg	Glu	Val	Val		
244					249					254					259		
aaa	cca	gct	gca	gtg	tta	tca	aag	ggt	gaa	ata	gtg	gtg	aaa	aat	aac	933	
Lys	Pro	Ala	Ala	Val	Leu	Ser	Lys	Gly	Glu	Ile	Val	Val	Lys	Asn	Asn		
260					265					270					275		
cca	aat	gaa	tct	gta	act	gct	aat	gcc	gct	acc	aat	tct	cct	tca	tgt	981	
Pro	Asn	Glu	Ser	Val	Thr	Ala	Asn	Ala	Ala	Thr	Asn	Ser	Pro	Ser	Cys		
276					281					286					291		
aca	aga	gag	tta	tct	tgg	aca	cca	atg	ggt	tat	gtt	gtt	cga	cag	aca	1029	
Thr	Arg	Glu	Leu	Ser	Trp	Thr	Pro	Met	Gly	Tyr	Val	Val	Arg	Gln	Thr		
292					297					302					307		
tta	tct	aca	gaa	ctg	tca	gca	gcc	cct	aaa	aat	gtt	act	tct	atg	ata	1077	
Leu	Ser	Thr	Glu	Leu	Ser	Ala	Ala	Pro	Lys	Asn	Val	Thr	Ser	Met	Ile		
308					313					318					323		
aac	tta	aag	acc	att	gct	tca	tca	gca	gat	cct	aaa	aat	gtt	agt	ata	1125	
Asn	Leu	Lys	Thr	Ile	Ala	Ser	Ser	Ala	Asp	Pro	Lys	Asn	Val	Ser	Ile		
324					329					334					339		
cca	tct	tct	gaa	gct	tta	tct	tcg	gat	cct	tcc	tac	aac	aaa	gaa	aaa	1173	
Pro	Ser	Ser	Glu	Ala	Leu	Ser	Ser	Asp	Pro	Ser	Tyr	Asn	Lys	Glu	Lys		
340					345					350					355		
cac	att	att	cat	cct	acc	caa	aag	tct	aaa	gca	tca	caa	ggt	agt	gac	1221	
His	Ile	Ile	His	Pro	Thr	Gln	Lys	Ser	Lys	Ala	Ser	Gln	Gly	Ser	Asp		

356	361	366	371	
ctt gaa caa aat gaa gcc tca aga aag aat aag aaa aaa aaa aaa aaa				1269
Leu Glu Gln Asn Glu Ala Ser Arg Lys Asn Lys Lys Lys Lys Lys Lys				
372	377	382	387	
tct aca tca aaa tat gaa gtc ctg aca gtt caa gag cct cca agg att				1317
Ser Thr Ser Lys Tyr Glu Val Leu Thr Val Gln Glu Pro Pro Arg Ile				
388	393	398	403	
gaa gat gcc gag gaa ttt ccc aac ctg gca gtt gca tct gaa aga aga				1365
Glu Asp Ala Glu Glu Phe Pro Asn Leu Ala Val Ala Ser Glu Arg Arg				
404	409	414	419	
gac aga ata gag aca ccg aaa ttt caa tct aag cag cag cca cag gat				1413
Asp Arg Ile Glu Thr Pro Lys Phe Gln Ser Lys Gln Gln Pro Gln Asp				
420	425	430	435	
aat ttt aaa aat aat gta aag aag agc cag ctt cca gtg cag ttg gac				1461
Asn Phe Lys Asn Asn Val Lys Lys Ser Gln Leu Pro Val Gln Leu Asp				
436	441	446	451	
ttg ggg ggc atg ctg aca gcc ctg gag aag aag cag cac tct cag cat				1509
Leu Gly Gly Met Leu Thr Ala Leu Glu Lys Lys Gln His Ser Gln His				
452	457	462	467	
gca aag cag tcc tcc aaa cca gtg gta gtc tca gtt gga gca gtg cca				1557
Ala Lys Gln Ser Ser Lys Pro Val Val Val Ser Val Gly Ala Val Pro				
468	473	478	483	
gtc ctt tcc aaa gaa tgt gca tca ggg gag aga ggc cgc cgc atg agt				1605
Val Leu Ser Lys Glu Cys Ala Ser Gly Glu Arg Gly Arg Arg Met Ser				
484	489	494	499	
caa atg aag acc ccg cac aat ccc ttg gac tcc agc gcc cca ctg atg				1653
Gln Met Lys Thr Pro His Asn Pro Leu Asp Ser Ser Ala Pro Leu Met				
500	505	510	515	
aag aaa ggg aag cag agg gag atc ccc aag gcc aag aag cca acc tca				1701
Lys Lys Gly Lys Gln Arg Glu Ile Pro Lys Ala Lys Lys Pro Thr Ser				
516	521	526	531	
ctg aag aag att att ttg aaa gaa cgg caa gag aga aag cag cgt ctc				1749
Leu Lys Lys Ile Ile Leu Lys Glu Arg Gln Glu Arg Lys Gln Arg Leu				
532	537	542	547	
caa gaa aat gct gtg agt cca gct ttt acc agt gat gac aca caa gat				1797
Gln Glu Asn Ala Val Ser Pro Ala Phe Thr Ser Asp Asp Thr Gln Asp				
548	553	558	563	
gga gag agt ggt ggt gat gac cag ttt ccc gag cag gca gag ctg tca				1845
Gly Glu Ser Gly Gly Asp Asp Gln Phe Pro Glu Gln Ala Glu Leu Ser				
564	569	574	579	
ggg cca gag ggg atg gac gaa ctg atc tcc act cct tcg gtt gag gac				1893
Gly Pro Glu Gly Met Asp Glu Leu Ile Ser Thr Pro Ser Val Glu Asp				
580	585	590	595	

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Lys Ser Glu Glu Pro Pro Gly Thr Glu Leu Gln Arg Asp Thr Glu Ala	
596 601 606 611	
tcc cac ctt gct ccc aat cac acc acc ttc cct aag atc cac agc cgc	1989
Ser His Leu Ala Pro Asn His Thr Thr Phe Pro Lys Ile His Ser Arg	
612 617 622 627	
aga ttc agg gat tac tgc agc cag atg ctt agt aaa gaa gtg gat gct	2037
Arg Phe Arg Asp Tyr Cys Ser Gln Met Leu Ser Lys Glu Val Asp Ala	
628 633 638 643	
tgt gtt acc gac cta ctc aaa gaa ctg gtc cgt ttc caa gac cgt atg	2085
Cys Val Thr Asp Leu Leu Lys Glu Leu Val Arg Phe Gln Asp Arg Met	
644 649 654 659	
tac cag aaa gat cca gtc aag gcc aag act aaa cgt cga ctt gtg ttg	2133
Tyr Gln Lys Asp Pro Val Lys Ala Lys Thr Lys Arg Arg Leu Val Leu	
660 665 670 675	
ggg ttg agg gag gtt ctc aaa cac ctg aag ctc aaa aaa ctg aaa tgt	2181
Gly Leu Arg Glu Val Leu Lys His Leu Lys Leu Lys Lys Leu Lys Cys	
676 681 686 691	
gtc att att tct ccc aac tgt gag aag ata cag tca aaa ggt ggg ctg	2229
Val Ile Ile Ser Pro Asn Cys Glu Lys Ile Gln Ser Lys Gly Gly Leu	
692 697 702 707	
gat gac act ttg cac aca att att gat tat gcc tgt gag cag aac att	2277
Asp Asp Thr Leu His Thr Ile Ile Asp Tyr Ala Cys Glu Gln Asn Ile	
708 713 718 723	
ccc ttt gtg ttt gct ctc aac cgc aaa gct ctg ggg cgc agt ttg aat	2325
Pro Phe Val Phe Ala Leu Asn Arg Lys Ala Leu Gly Arg Ser Leu Asn	
724 729 734 739	
aag gca gtt cct gtc agt gtg gtg ggg atc ttc agc tat gat ggg gcc	2373
Lys Ala Val Pro Val Ser Val Val Gly Ile Phe Ser Tyr Asp Gly Ala	
740 745 750 755	
cag gat cag ttc cac aag atg gtt gag ctg aca gtg gcg gcc cga cag	2421
Gln Asp Gln Phe His Lys Met Val Glu Leu Thr Val Ala Ala Arg Gln	
756 761 766 771	
gcg tac aag acc atg ctg gag aat gtg cag cag gag ctg gtg gga gag	2469
Ala Tyr Lys Thr Met Leu Glu Asn Val Gln Gln Glu Leu Val Gly Glu	
772 777 782 787	
ccc agg cct cag gca cct ccc agc cta ccc aca cag ggc ccc agc tgc	2517
Pro Arg Pro Gln Ala Pro Pro Ser Leu Pro Thr Gln Gly Pro Ser Cys	
788 793 798 803	
cct gca gaa gat ggc ccc cca gcc ctg aaa gaa aaa gaa gag cca cac	2565
Pro Ala Glu Asp Gly Pro Pro Ala Leu Lys Glu Lys Glu Glu Pro His	
804 809 814 819	

tac att gaa atc tgg aaa aaa cat ctg gaa gca tac agt gga tgt acc 2613  
Tyr Ile Glu Ile Trp Lys Lys His Leu Glu Ala Tyr Ser Gly Cys Thr  
820 825 830 835

ctg gag cta gaa gaa tcc ttg gag gct tca acc tct caa atg atg aat 2661  
Leu Glu Leu Glu Glu Ser Leu Glu Ala Ser Thr Ser Gln Met Met Asn  
836 841 846 851

ttg aat tta tga gag ttcttgccctg tgtgtctgtgta ttttgggtaa ggagggggagg 2716  
Leu Asn Leu \*  
852

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gcagacacat tgggaagaag aggagtgccg gcaggatgtc agtcttttga ggaaacaggt 360  
tctttgcaga tgtagttcca gcagtcagga agtggagaga ggccgga atg aag gtg 416  
Met Lys Val  
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tac atc tat tcc tca ggg agt gtg gag gca cag aaa ctg tta ttc ggg 464  
Tyr Ile Tyr Ser Ser Gly Ser Val Glu Ala Gln Lys Leu Leu Phe Gly  
4 9 14 19

cat tct acg gag gga gat att ctt gag ctt gtt gat ggt cac ttt gat 512  
His Ser Thr Glu Gly Asp Ile Leu Glu Leu Val Asp Gly His Phe Asp  
20 25 30 35

acc aag att gga cac aaa gta gag agt gaa agt tac cga aag att gca 560  
Thr Lys Ile Gly His Lys Val Glu Ser Glu Ser Tyr Arg Lys Ile Ala  
36 41 46 51

gac agc att ggg tgc tca acc aac aac att ttg ttt ctg aca gat gtt	608
Asp Ser Ile Gly Cys Ser Thr Asn Asn Ile Leu Phe Leu Thr Asp Val	
52 57 62 67	
act cga gag gcc agt gct gct gag gaa gca gat gtg cac gta gct gtg	656
Thr Arg Glu Ala Ser Ala Ala Glu Glu Ala Asp Val His Val Ala Val	
68 73 78 83	
gtg gtg aga cca ggc aac gca gga tta aca gat gat gag aag act tac	704
Val Val Arg Pro Gly Asn Ala Gly Leu Thr Asp Asp Glu Lys Thr Tyr	
84 89 94 99	
tac agc ctc atc aca tcc ttc agt gaa cta tac ctg cct tcc tca acc	752
Tyr Ser Leu Ile Thr Ser Phe Ser Glu Leu Tyr Leu Pro Ser Ser Thr	
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116	
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tcagttcagt gaacacaaaa cttattttaa gatgctttat atgtagaaat tgtttcaaat	989
catactctaa cccttagtga gggcaaagtg tagttggtag aagaaattgc taaataccta	1049
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<212> DNA  
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<222> (313) .. (1347)

<400> 234

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agcgcggggc	tgcgcccggg	tcgctgcgcc	ctccgccgct	ggcctctgcg	acgcgcgccg	240
ctcgcccag	ccaccgcgcg	ccgcgccggc	tccccgcgcc	gctgcgctcc	tcgcccgcg	300
cctgccccca	gg	atg gtc cgc gcg agg cac cag ccg ggt ggg ctt tgc				348
		Met Val Arg Ala Arg His Gln Pro Gly Gly Leu Cys				
		1 5 10				
ctc ctg ctg ctg ctg ctc tgc cag ttc atg gag gac cgc agt gcc cag						396
Leu Leu Leu Leu Leu Leu Cys Gln Phe Met Glu Asp Arg Ser Ala Gln						
13 18 23 28						
gct ggg aac tgc tgg ctc cgt caa gcg aag aac ggc cgc tgc cag gtc						444
Ala Gly Asn Cys Trp Leu Arg Gln Ala Lys Asn Gly Arg Cys Gln Val						
29 34 39 44						
ctg tac aag acc gaa ctg agc aag gag gag tgc tgc agc acc ggc cgg						492
Leu Tyr Lys Thr Glu Leu Ser Lys Glu Glu Cys Cys Ser Thr Gly Arg						
45 50 55 60						
ctg agc acc tgc tgg acc gag gag gac gtg aat gac aac aca ctc ttc						540
Leu Ser Thr Ser Trp Thr Glu Glu Asp Val Asn Asp Asn Thr Leu Phe						
61 66 71 76						
aag tgg atg att ttc aac ggg ggc gcc ccc aac tgc atc ccc tgt aaa						588
Lys Trp Met Ile Phe Asn Gly Gly Ala Pro Asn Cys Ile Pro Cys Lys						
77 82 87 92						
gaa acg tgt gag aac gtg gac tgt gga cct ggg aaa aaa tgc cga atg						636
Glu Thr Cys Glu Asn Val Asp Cys Gly Pro Gly Lys Lys Cys Arg Met						
93 98 103 108						
aac aag aag aac aaa ccc cgc tgc gtc tgc gcc ccg gat tgt tcc aac						684
Asn Lys Lys Asn Lys Pro Arg Cys Val Cys Ala Pro Asp Cys Ser Asn						
109 114 119 124						
atc acc tgg aag ggt cca gtc tgc ggg ctg gat ggg aaa acc tac cgc						732
Ile Thr Trp Lys Gly Pro Val Cys Gly Leu Asp Gly Lys Thr Tyr Arg						
125 130 135 140						
aat gaa tgt gca ctc cta aag gca aga tgt aaa gag cag cca gaa ctg						780
Asn Glu Cys Ala Leu Leu Lys Ala Arg Cys Lys Glu Gln Pro Glu Leu						
141 146 151 156						

gaa gtc cag tac caa ggc aga tgt aaa aag act tgt cgg gat gtt ttc	828
Glu Val Gln Tyr Gln Gly Arg Cys Lys Lys Thr Cys Arg Asp Val Phe	
157 162 167 172	
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Cys Pro Gly Ser Ser Thr Cys Val Val Asp Gln Thr Asn Asn Ala Tyr	
173 178 183 188	
tgt gtg acc tgt aat cgg att tgc cca gag cct gct tcc tct gag caa	924
Cys Val Thr Cys Asn Arg Ile Cys Pro Glu Pro Ala Ser Ser Glu Gln	
189 194 199 204	
tat ctc tgt ggg aat gat gga gtc acc tac tcc agt gcc tgc cac ctg	972
Tyr Leu Cys Gly Asn Asp Gly Val Thr Tyr Ser Ser Ala Cys His Leu	
205 210 215 220	
aga aag gct acc tgc ctg ctg ggc aga tct att gga tta gcc tat gag	1020
Arg Lys Ala Thr Cys Leu Leu Gly Arg Ser Ile Gly Leu Ala Tyr Glu	
221 226 231 236	
gga aag tgt atc aaa gca aag tcc tgt gaa gat atc cag tgc act ggt	1068
Gly Lys Cys Ile Lys Ala Lys Ser Cys Glu Asp Ile Gln Cys Thr Gly	
237 242 247 252	
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Gly Lys Lys Cys Leu Trp Asp Phe Lys Val Gly Arg Gly Arg Cys Ser	
253 258 263 268	
ctc tgt gat gag ctg tgc cct gac agt aag tgc gat gag cct gtc tgt	1164
Leu Cys Asp Glu Leu Cys Pro Asp Ser Lys Ser Asp Glu Pro Val Cys	
269 274 279 284	
gcc agt gac aat gcc act tat gcc agc gag tgt gcc atg aag gaa gct	1212
Ala Ser Asp Asn Ala Thr Tyr Ala Ser Glu Cys Ala Met Lys Glu Ala	
285 290 295 300	
gcc tgc tcc tca ggt gtg cta ctg gaa gta aag cac tcc gga tct tgc	1260
Ala Cys Ser Ser Gly Val Leu Leu Glu Val Lys His Ser Gly Ser Cys	
301 306 311 316	
aac tcc att tcg gaa gac acc gag gaa gag gag gaa gat gaa gac cag	1308
Asn Ser Ile Ser Glu Asp Thr Glu Glu Glu Glu Glu Asp Glu Asp Gln	
317 322 327 332	
gac tac agc ttt cct ata tct tct att cta gag tgg taa actctctata	1357
Asp Tyr Ser Phe Pro Ile Ser Ser Ile Leu Glu Trp *	
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 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (243)..(2192)

<400> 235

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Gly Glu Lys His Met Leu Pro Gly Leu Ser His Asn Lys Glu His Leu				
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Thr Glu Gln Ile Asn Val Glu Glu Lys Leu Cys Ser Ala Glu Lys Asn				
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Pro Ser Glu Phe Pro Ser Lys Ser Ile Thr Phe Thr Ser Arg Ser Thr				
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Lys Arg Lys Asp Phe Lys Glu Gln Val Ile His His Phe Val Ala Val		
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Gly Ala Ser Cys Phe His Ser Glu Pro Arg Lys Glu Phe Gly Gly Pro
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Asp Gly Gly Asp Gly Gly Asn Gly Gly His Val Ile Leu Arg Val Asp
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Ser Gly Glu Asp Gly Gly Ser Lys Asn Cys Phe Gly Arg Ser Gly Ala
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Leu Ser His Ser Glu Phe Lys Asp Leu Ile Leu Pro Thr Ile Gln Lys				
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tcc tta ctg agg agt cca gag aat gtt att gaa act att tct agt ctg				893
Ser Leu Leu Arg Ser Pro Glu Asn Val Ile Glu Thr Ile Ser Ser Leu				
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ctg gca tca gtg acg ctt gac ctc agc cag tat gcc atg gac atc gtg				941
Leu Ala Ser Val Thr Leu Asp Leu Ser Gln Tyr Ala Met Asp Ile Val				
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Lys Gly Leu Ala Gly His Leu Lys Ser Asn Ser Pro Arg Leu Met Asp				
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Glu Ala Val Leu Ala Leu Arg Asn Leu Ala Arg Gln Cys Ser Asp Ser				
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Gly Ile Gly Ser Val Ser His His Val Val Ser Gly Pro Ser Ser Gln				
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Val Leu Asn Gly Ile Val Ala Glu Leu Phe Ile Pro Phe Leu Gln Gln				
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cag gcc ctg gac tta ctg ccc ttg ctc atc cag aca gtg gag aag gca				1469
Gln Ala Leu Asp Leu Leu Pro Leu Leu Ile Gln Thr Val Glu Lys Ala				
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Ala Ser Gln Ser Thr Gln Val Pro Thr Ile Thr Glu Gly Val Ala Ala	
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Phe Thr Ser Glu Lys Phe Leu Val Met Ala Ser Glu Asp Ala Leu Cys	
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Thr Val Leu His Leu Thr Glu Arg Leu Phe Leu Asp His Pro His Arg	
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Leu Thr Gly Asn Lys Val Gln Gln Tyr His Arg Ala Leu Val Ala Val	
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Leu Leu Ser Arg Thr Trp His Val Arg Arg Gln Ala Gln Gln Thr Val	
375 380 385 390	
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Arg Lys Leu Leu Ser Ser Leu Gly Gly Phe Lys Leu Ala His Gly Leu	
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Leu Glu Glu Leu Lys Thr Val Leu Ser Ser His Lys Val Leu Pro Leu	
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Ile Met Gln Thr Pro Ala Gly Glu Leu Tyr Asp Lys Ser Ile Ile Gln	
567 572 577 582	
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His Thr Ile Thr Ser Arg Val Gly Lys Gly Glu Pro Gly Ala Ala Pro	
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Asp Thr Asp Glu Lys Asn Gly Leu Asn Leu Leu Arg Arg Leu Trp Val	
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Asp Ala Ser Tyr Asp	Ala Val Arg Gln Ser	Val Val Val Leu Met Gly		
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Ser Leu Ala Lys His	Leu Asp Lys Ser Asp	Pro Lys Val Lys Pro Ile		
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Val Ala Lys Leu Ile	Ala Ala Leu Ser Thr	Pro Ser Gln Gln Val Gln		
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Glu Ser Val Ala Ser	Cys Leu Pro Pro Leu	Val Pro Ala Ile Lys Glu		
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Asp Ala Gly Gly Met	Ile Gln Arg Leu Met	Gln Gln Leu Leu Glu Ser		
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Thr Asp Thr Arg Lys Met Ala Ala Gln Ile Ile Gly Asn Met Tyr Ser	
1431 1436 1441 1446	
ctg aca gac cag aag gac ttg gct ccg tac ctg ccc agc gtg acg cct	5021
Leu Thr Asp Gln Lys Asp Leu Ala Pro Tyr Leu Pro Ser Val Thr Pro	
1447 1452 1457 1462	
ggc ctg aaa gca tgc ctt ttg gac cct gtg cct gag gtg cgg acc gta	5069
Gly Leu Lys Ala Ser Leu Leu Asp Pro Val Pro Glu Val Arg Thr Val	
1463 1468 1473 1478	
tct gca aag gcc ctt ggg gcc atg gtg aag ggc atg ggg gag tgc tgc	5117
Ser Ala Lys Ala Leu Gly Ala Met Val Lys Gly Met Gly Glu Ser Cys	
1479 1484 1489 1494	
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Phe Glu Asp Leu Leu Pro Trp Leu Met Glu Thr Leu Thr Tyr Glu Gln	
1495 1500 1505 1510	
agc tct gtg gat cgc tca ggc gct gca cag ggg ttg gct gag gtc atg	5213
Ser Ser Val Asp Arg Ser Gly Ala Ala Gln Gly Leu Ala Glu Val Met	
1511 1516 1521 1526	
gcc ggt ttg ggg gtg gag aag ttg gag aag ttg atg cca gaa atc gtg	5261
Ala Gly Leu Gly Val Glu Lys Leu Glu Lys Leu Met Pro Glu Ile Val	
1527 1532 1537 1542	
gct aca gcc agc aaa gtg gac att gca ccc cat gtc cga gat ggc tac	5309
Ala Thr Ala Ser Lys Val Asp Ile Ala Pro His Val Arg Asp Gly Tyr	
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Ile Met Met Phe Asn Tyr Leu Pro Ile Thr Phe Gly Asp Lys Phe Thr	
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cct tat gtg ggg ccc atc atc ccc tgt atc ctc aaa gct ctt gct gat	5405
Pro Tyr Val Gly Pro Ile Ile Pro Cys Ile Leu Lys Ala Leu Ala Asp	
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Glu Asn Glu Phe Val Arg Asp Thr Ala Leu Arg Ala Gly Gln Arg Val	
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Ile Ser Met Tyr Ala Glu Thr Ala Ile Ala Leu Leu Leu Pro Gln Leu	
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Glu Gln Gly Leu Phe Asp Asp Leu Trp Arg Ile Arg Phe Ser Ser Val	
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Gln Leu Leu Gly Asp Leu Leu Phe His Ile Ser Gly Val Thr Gly Lys	
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Met Thr Thr Glu Thr Ala Ser Glu Asp Asp Asn Phe Gly Thr Ala Gln	
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Ser Asn Lys Ala Ile Ile Thr Ala Leu Gly Val Glu Arg Arg Asn Arg	
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Val Leu Ala Gly Leu Tyr Met Gly Arg Ser Asp Thr Gln Leu Val Val	
1687 1692 1697 1702	
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Arg Gln Ala Ser Leu His Val Trp Lys Ile Val Val Ser Asn Thr Pro	
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Phe Leu Ala Ser Thr Cys Ala Asp Lys Arg Thr Ile Ala Ala Arg Thr	
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Leu Gly Asp Leu Val Arg Lys Leu Gly Glu Lys Ile Leu Pro Glu Ile	
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atc ccc atc ctt gag gaa ggc ctg agg tct cag aag agc gat gag agg	5981
Ile Pro Ile Leu Glu Glu Gly Leu Arg Ser Gln Lys Ser Asp Glu Arg	
1767 1772 1777 1782	
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Gln Gly Val Cys Ile Gly Leu Ser Glu Ile Met Lys Ser Thr Ser Arg	
1783 1788 1793 1798	
gat gcc gtg ctg tat ttc tct gaa tcc ctc gtg ccc acg gca agg aag	6077
Asp Ala Val Leu Tyr Phe Ser Glu Ser Leu Val Pro Thr Ala Arg Lys	
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gct ttg tgt gac cca ctg gag gag gtc aga gag gcg gca gcc aag act	6125
Ala Leu Cys Asp Pro Leu Glu Glu Val Arg Glu Ala Ala Ala Lys Thr	
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Phe Glu Gln Leu His Ser Thr Ile Gly His Gln Ala Leu Glu Asp Ile	
1831 1836 1841 1846	
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1847 1852 1857 1862	
gcc ttg gat ggt ctg aag caa gtc atg gct att aag agt cgt gtg gtg	6269
Ala Leu Asp Gly Leu Lys Gln Val Met Ala Ile Lys Ser Arg Val Val	

1863	1868	1873	1878	
ctg ccc tac ctt gtg ccc aag ctg aca acg cca cct gtc aac acc cgg				6317
Leu Pro Tyr Leu Val Pro Lys Leu Thr Thr Pro Pro Val Asn Thr Arg				
1879	1884	1889	1894	
gtg ctg gct ttc ctt tcg tca gtg gct ggt gat gcc ctc acc cgt cat				6365
Val Leu Ala Phe Leu Ser Ser Val Ala Gly Asp Ala Leu Thr Arg His				
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Leu Gly Val Ile Leu Pro Ala Val Met Leu Ala Leu Lys Glu Lys Leu				
1911	1916	1921	1926	
ggg acc cca gat gag cag ctg gag atg gcc aat tgt cag gct gtg atc				6461
Gly Thr Pro Asp Glu Gln Leu Glu Met Ala Asn Cys Gln Ala Val Ile				
1927	1932	1937	1942	
ctc tcc gta gag gat gac aca ggg cac cgg atc atc atc gag gat ctg				6509
Leu Ser Val Glu Asp Asp Thr Gly His Arg Ile Ile Ile Glu Asp Leu				
1943	1948	1953	1958	
ctg gag gcc acc cgc agc cct gag gtg ggc atg agg caa gct gct gcc				6557
Leu Glu Ala Thr Arg Ser Pro Glu Val Gly Met Arg Gln Ala Ala Ala				
1959	1964	1969	1974	
atc atc ctc aac atc tac tgt tcc cgc tca aag gct gac tac acc agc				6605
Ile Ile Leu Asn Ile Tyr Cys Ser Arg Ser Lys Ala Asp Tyr Thr Ser				
1975	1980	1985	1990	
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His Leu Arg Ser Leu Val Ser Gly Leu Ile Arg Leu Phe Asn Asp Ser				
1991	1996	2001	2006	
agc cct gtg gtt ctg gag gag agc tgg gat gcc cta aat gcc atc act				6701
Ser Pro Val Val Leu Glu Glu Ser Trp Asp Ala Leu Asn Ala Ile Thr				
2007	2012	2017	2022	
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Lys Lys Leu Asp Ala Gly Asn Gln Leu Ala Leu Ile Glu Glu Leu His				
2023	2028	2033	2038	
aag gaa atc cgg ctc ata ggg aac gag agc aaa ggc gag cat gtg cca				6797
Lys Glu Ile Arg Leu Ile Gly Asn Glu Ser Lys Gly Glu His Val Pro				
2039	2044	2049	2054	
gga ttc tgc ctc ccg aag aag gga gtg acc tcc atc ctt cca gtg ttg				6845
Gly Phe Cys Leu Pro Lys Lys Gly Val Thr Ser Ile Leu Pro Val Leu				
2055	2060	2065	2070	
cgg gaa gga gtc ctg act ggc agc cct gag cag aag gag gag gca gcc				6893
Arg Glu Gly Val Leu Thr Gly Ser Pro Glu Gln Lys Glu Glu Ala Ala				
2071	2076	2081	2086	
aaa gcc tta ggc ttg gta atc cgc ctg acc tcg gct gac gcc ctg agg				6941
Lys Ala Leu Gly Leu Val Ile Arg Leu Thr Ser Ala Asp Ala Leu Arg				
2087	2092	2097	2102	

ccc tcc gtg gtc agc atc act ggc cct ctg atc cgc atc ctg ggg gac	6989
Pro Ser Val Val Ser Ile Thr Gly Pro Leu Ile Arg Ile Leu Gly Asp	
2103 2108 2113 2118	
agg ttc agc tgg aat gtg aag gcg gct ctg ctc gag aca ctc agc ctc	7037
Arg Phe Ser Trp Asn Val Lys Ala Ala Leu Leu Glu Thr Leu Ser Leu	
2119 2124 2129 2134	
ttg ttg gct aag gtt ggg att gcc ctg aag ccc ttc ctg ccc cag ctg	7085
Leu Leu Ala Lys Val Gly Ile Ala Leu Lys Pro Phe Leu Pro Gln Leu	
2135 2140 2145 2150	
cag acc act ttc acc aaa gcc ctg cag gac tcc aac cgg ggg gtg cgc	7133
Gln Thr Thr Phe Thr Lys Ala Leu Gln Asp Ser Asn Arg Gly Val Arg	
2151 2156 2161 2166	
ctg aag gcc gca gat gct ctg ggg aag ctc att tcc atc cac att aag	7181
Leu Lys Ala Ala Asp Ala Leu Gly Lys Leu Ile Ser Ile His Ile Lys	
2167 2172 2177 2182	
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Val Asp Pro Leu Phe Thr Glu Leu Leu Asn Gly Ile Arg Ala Met Glu	
2183 2188 2193 2198	
gac cca ggt gtc agg gac acc atg ctg cag gcc ctg agg ttt gtg att	7277
Asp Pro Gly Val Arg Asp Thr Met Leu Gln Ala Leu Arg Phe Val Ile	
2199 2204 2209 2214	
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Gln Gly Ala Gly Ala Lys Val Asp Ala Val Ile Arg Lys Asn Ile Val	
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2231 2236 2241 2246	
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Ser Ser Ala Gly Cys Leu Gly Glu Leu Cys Ala Phe Leu Thr Glu Glu	
2247 2252 2257 2262	
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Ile Asp Trp Met Val Arg His Gly Arg Ser Leu Ala Leu Ser Val Ala	
2279 2284 2289 2294	
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Val Asn Val Ala Pro Gly Arg Leu Cys Ala Gly Arg Tyr Ser Ser Asp	
2295 2300 2305 2310	
gtt cag gaa atg atc ctg agc agt gcc acg gcg gac agg atc ccc att	7613
Val Gln Glu Met Ile Leu Ser Ser Ala Thr Ala Asp Arg Ile Pro Ile	
2311 2316 2321 2326	

gcg gtg agc ggg gtc cgg ggc atg ggc ttt ctc atg aga cac cac atc	7661
Ala Val Ser Gly Val Arg Gly Met Gly Phe Leu Met Arg His His Ile	
2327 2332 2337 2342	
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Glu Thr Gly Gly Gly Gln Leu Pro Ala Lys Leu Ser Ser Leu Phe Val	
2343 2348 2353 2358	
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Lys Cys Leu Gln Asn Pro Ser Ser Asp Ile Arg Leu Val Ala Glu Lys	
2359 2364 2369 2374	
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Met Ile Trp Trp Ala Asn Lys Asp Pro Leu Pro Pro Leu Asp Pro Gln	
2375 2380 2385 2390	
gcc atc aag ccc atc ctg aag gct ctt ctt gac aac acc aag gat aag	7853
Ala Ile Lys Pro Ile Leu Lys Ala Leu Leu Asp Asn Thr Lys Asp Lys	
2391 2396 2401 2406	
aac acc gtg gtc agg gcc tac agc gac cag gca att gtc aac ctc ctc	7901
Asn Thr Val Val Arg Ala Tyr Ser Asp Gln Ala Ile Val Asn Leu Leu	
2407 2412 2417 2422	
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Lys Met Arg Gln Gly Glu Glu Val Phe Gln Ser Leu Ser Lys Ile Leu	
2423 2428 2433 2438	
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Asp Val Ala Ser Leu Glu Val Leu Asn Glu Val Asn Arg Arg Ser Leu	
2439 2444 2449 2454	
aag aag ctg gcc agc cag gcc gac tcc acg gag cag gtg gac gac acc	8045
Lys Lys Leu Ala Ser Gln Ala Asp Ser Thr Glu Gln Val Asp Asp Thr	
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Ile Leu Thr *	
2471	
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8649

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<213> Homo sapiens

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Met Glu Gly Ile Pro Gly Phe Pro Gly  
1 5

aac cga gga tta atg ggc caa aag gga gaa att ggg cct cca gga cag 159  
Asn Arg Gly Leu Met Gly Gln Lys Gly Glu Ile Gly Pro Pro Gly Gln  
10 15 20 25

caa gga aaa aaa gga gcc cca ggg atg cct ggt tta atg gga agc aat 207  
Gln Gly Lys Lys Gly Ala Pro Gly Met Pro Gly Leu Met Gly Ser Asn  
26 31 36 41

ggc tca cca ggc cag cct gga aca ccg gga tct aag gga agc aaa ggt 255  
Gly Ser Pro Gly Gln Pro Gly Thr Pro Gly Ser Lys Gly Ser Lys Gly  
42 47 52 57

gaa cct gga att caa ggg atg cct ggg gct tct ggg ctc aag gga gaa 303  
Glu Pro Gly Ile Gln Gly Met Pro Gly Ala Ser Gly Leu Lys Gly Glu  
58 63 68 73

cca gga gca acg ggt tcc cca gga gaa cca gga tac atg ggt tta ccc 351  
Pro Gly Ala Thr Gly Ser Pro Gly Glu Pro Gly Tyr Met Gly Leu Pro  
74 79 84 89

ggg att caa gga aaa aag ggg gac aaa gga aat caa ggt gaa aaa ggt 399  
Gly Ile Gln Gly Lys Lys Gly Asp Lys Gly Asn Gln Gly Glu Lys Gly  
90 95 100 105

att cag ggt caa aag gga gaa aat gga aga cag gga att cca ggg caa 447  
Ile Gln Gly Gln Lys Gly Glu Asn Gly Arg Gln Gly Ile Pro Gly Gln  
106 111 116 121

cag gga att caa ggc cat cat ggt gca aaa gga gag aga ggt gaa aag 495  
Gln Gly Ile Gln Gly His His Gly Ala Lys Gly Glu Arg Gly Glu Lys  
122 127 132 137

gga gaa cct ggt gtc cga ggt gcc att gga tca aaa gga gaa tct ggg 543  
Gly Glu Pro Gly Val Arg Gly Ala Ile Gly Ser Lys Gly Glu Ser Gly  
138 143 148 153

gtg gat ggc ttg atg Val Asp Gly Leu Met 154	ggg ccc gca ggt cct Gly Pro Ala Gly Pro 159	aag ggg caa cct ggg gat Lys Gly Gln Pro Gly Asp 164 169	591
cca ggt cct cag gga Pro Gly Pro Gln Gly 170	ccc cca ggt ttg gat Pro Pro Gly Leu Asp 175	ggg aag ccc gga aga gag Gly Lys Pro Gly Arg Glu 180 185	639
ttt tca gaa caa ttt Phe Ser Glu Gln Phe 186	att cga caa gtt tgc Ile Arg Gln Val Cys 191 196	aca gat gta ata aga gcc Thr Asp Val Ile Arg Ala 201	687
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tta aaa ggc cta cca Leu Lys Gly Leu Pro 266	gga aga aat ggg gaa Gly Arg Asn Gly Glu 271 276	aaa ggg agc caa ggg ttt Lys Gly Ser Gln Gly Phe 281	927
ggg tat cct gga gaa Gly Tyr Pro Gly Glu 282	caa ggt cct cct ggt Gln Gly Pro Pro Gly 287 292	ccc cca ggt cca gag ggc Pro Pro Gly Pro Glu Gly 297	975
cct cct gga ata agc Pro Pro Gly Ile Ser 298	aaa gaa ggt cct cca Lys Glu Gly Pro Pro 303 308	gac cca ggt ctc cct Asp Pro Gly Leu Pro 313	1023
ggc aaa gat gga gac Gly Lys Asp Gly Asp 314	cat gga aaa cct gga His Gly Lys Pro Gly 319 324	atc caa ggg caa cca ggc Ile Gln Gly Gln Pro Gly 329	1071
ccc cca ggc atc tgc Pro Pro Gly Ile Cys 330	gac cca tca cta tgt Asp Pro Ser Leu Cys 335 340	ttt agt gta att gcc aga Phe Ser Val Ile Ala Arg 345	1119
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ccctcccttt ggaaaggcac caaaagccag cctttggaag ggctgggtgga ctgtgccctt	180
ctttcccttc agagaaccag tgtccctgtg actccacca ctcatctggc caccgttgcc	240
ctgacctgcc aggagcctgg agaag atg aag gca tcc gtg gtt ctc tcc ctc	292
Met Lys Ala Ser Val Val Leu Ser Leu	

1

5

ctt ggc tac ctg gtg gtt cca agt ggt gct tac atc ttg ggg cgt tgc	340
Leu Gly Tyr Leu Val Val Pro Ser Gly Ala Tyr Ile Leu Gly Arg Cys	
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Thr Val Ala Lys Lys Leu His Asp Gly Gly Leu Asp Tyr Phe Glu Gly	
26 31 36 41	
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Tyr Ser Leu Glu Asn Trp Val Cys Leu Ala Tyr Phe Glu Ser Lys Phe	
42 47 52 57	
aac ccc atg gcc atc tac gag aac aca cgt gag ggc tac act ggc ttt	484
Asn Pro Met Ala Ile Tyr Glu Asn Thr Arg Glu Gly Tyr Thr Gly Phe	
58 63 68 73	
ggc ctc ttt cag atg cgt ggc agt gac tgg tgt ggc gac cat ggc agg	532
Gly Leu Phe Gln Met Arg Gly Ser Asp Trp Cys Gly Asp His Gly Arg	
74 79 84 89	
aac cgc tgc cat atg tca tgt tcc gct tta ctg aat cct aat tta gag	580
Asn Arg Cys His Met Ser Cys Ser Ala Leu Leu Asn Pro Asn Leu Glu	
90 95 100 105	
aag aca att aaa tgt gcc aag acc att gta aaa gga aaa gaa ggg atg	628
Lys Thr Ile Lys Cys Ala Lys Thr Ile Val Lys Gly Lys Glu Gly Met	
106 111 116 121	
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Gly Ala Trp Pro Thr Trp Ser Arg Tyr Cys Gln Tyr Ser Asp Thr Leu	
122 127 132 137	
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Ala Arg Trp Leu Asp Gly Cys Lys Leu *	
138 143	
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	Met Leu Arg Ala Gly Trp	
	1	
ctc cgg ggc gcg gcg gcg ctg gcg ctg ctg ctg gcg gcc cga gtg gtg		161
Leu Arg Gly Ala Ala Ala Leu Ala Leu Leu Leu Ala Ala Arg Val Val		
7 12 17 22		
gcg gcg ttc gag ccc atc acc gtg ggc cta gcc atc ggg gcc gcg tcg		209
Ala Ala Phe Glu Pro Ile Thr Val Gly Leu Ala Ile Gly Ala Ala Ser		
23 28 33 38		
gcc atc acc ggc tac ctg tcc tac aat gac atc tac tgc cgc ttc gcc		257
Ala Ile Thr Gly Tyr Leu Ser Tyr Asn Asp Ile Tyr Cys Arg Phe Ala		
39 44 49 54		
gag tgc tgc cgc gag gag cgg ccg ctg aac gct tcg gct ctg aag ctg		305
Glu Cys Cys Arg Glu Glu Arg Pro Leu Asn Ala Ser Ala Leu Lys Leu		
55 60 65 70		
gat ttg gag gag aag ctg ttt gga cag cat cta gcc acg gaa gtg att		353
Asp Leu Glu Glu Lys Leu Phe Gly Gln His Leu Ala Thr Glu Val Ile		
71 76 81 86		
ttc aag gcg ctg act ggc ttc agg aac aac aaa aat ccc aag aaa cca		401
Phe Lys Ala Leu Thr Gly Phe Arg Asn Asn Lys Asn Pro Lys Lys Pro		
87 92 97 102		
ctg acc ctt tcc tta cac ggc tgg gct ggc aca ggc aag aat ttt gtc		449
Leu Thr Leu Ser Leu His Gly Trp Ala Gly Thr Gly Lys Asn Phe Val		
103 108 113 118		
agt caa att gtg gct gaa aat ctt cac cca aaa ggt ctg aag agt aac		497
Ser Gln Ile Val Ala Glu Asn Leu His Pro Lys Gly Leu Lys Ser Asn		
119 124 129 134		
ttt gtc cac ctg ttt gta tgc act ctg cac ttc cct cat gag cag aag		545
Phe Val His Leu Phe Val Ser Thr Leu His Phe Pro His Glu Gln Lys		
135 140 145 150		
ata aaa ctg tac ccg gac cag tta cag aag tgg atc cgc ggt aat gtg		593
Ile Lys Leu Tyr Pro Asp Gln Leu Gln Lys Trp Ile Arg Gly Asn Val		
151 156 161 166		
agt gca tgt gcg aac tct gtt ttc ata ttt gac gag atg gat aaa ttg		641
Ser Ala Cys Ala Asn Ser Val Phe Ile Phe Asp Glu Met Asp Lys Leu		
167 172 177 182		
cac ccc ggg atc att gac gca atc aag ccg ttt cta gac tac tac gag		689
His Pro Gly Ile Ile Asp Ala Ile Lys Pro Phe Leu Asp Tyr Tyr Glu		
183 188 193 198		
cag gtt gac gga gtg tat tac cgc aaa gcc atc ttc atc ttt ctg agc		737
Gln Val Asp Gly Val Tyr Tyr Arg Lys Ala Ile Phe Ile Phe Leu Ser		
199 204 209 214		
aat gca ggc ggg gac ctt ata act aag acg gct ctt gac ttt tgg cgg		785

Asn Ala Gly Gly Asp	Leu Ile Thr Lys Thr	Ala Leu Asp Phe Trp Arg	
215	220	225	230
gcc gga aga aag agg	gaa gac att cag ctg	aag gac ctg gaa cct gta	833
Ala Gly Arg Lys Arg	Glu Asp Ile Gln Leu	Lys Asp Leu Glu Pro Val	
231	236	241	246
ctg tct gtc gga gtc	ttc aat aat aaa cac	agt ggc ctg tgg cac agt	881
Leu Ser Val Gly Val	Phe Asn Asn Lys His	Ser Gly Leu Trp His Ser	
247	252	257	262
gga ctg atc gac aaa	aac ctc att gat tac	ttt atc ccc ttc ctg cct	929
Gly Leu Ile Asp Lys	Asn Leu Ile Asp Tyr	Phe Ile Pro Phe Leu Pro	
263	268	273	278
ttg gag tac aga cat	gtg aaa atg tgt gtg	atg gcc gag atg agg gcc	977
Leu Glu Tyr Arg His	Val Lys Met Cys Val	Met Ala Glu Met Arg Ala	
279	284	289	294
cgt ggt tct gcc ata	gat gaa gac att gtc	aca aga gtg gca gag gaa	1025
Arg Gly Ser Ala Ile	Asp Glu Asp Ile Val	Thr Arg Val Ala Glu Glu	
295	300	305	310
atg acg ttt ttt ccc	cag aga cga gaa aat	cta ctc aga caa ggg ctg	1073
Met Thr Phe Phe Pro	Gln Arg Arg Glu Asn	Leu Leu Arg Gln Gly Leu	
311	316	321	326
caa gac tgt gca gtc	gcg gct gga ttt cca	ctg agc tcc tat cca gat	1121
Gln Asp Cys Ala Val	Ala Ala Gly Phe Pro	Leu Ser Ser Tyr Pro Asp	
327	332	337	342
ggg gta gga gac agc	tgg gag gct ccg cac	gcc aga ggc ctt gcc ttt	1169
Gly Val Gly Asp Ser	Trp Glu Ala Pro His	Ala Arg Gly Leu Ala Phe	
343	348	353	358
cag aag aac cct gaa	gac cgc ttt ggg gtt	ttg cct gtt tgc acc tta	1217
Gln Lys Asn Pro Glu	Asp Arg Phe Gly Val	Leu Pro Val Cys Thr Leu	
359	364	369	374
gac ttt tgg gta tag aatctttttt ttgagaagag gtctcactcc gtcattccaag			1272
Asp Phe Trp Val *			
375			
ctggagtgca gtggtgcaat cctcaactca ctgcaacctc cgctcccggg ttgagtgatt			1332
ctcatgcctc agcctcccgga gtagctggga ttacaggcat gagccactgt gccagctgg			1392
gatatagaat ctaagagttg attgtggaaa acacgtgaat ctattgcgcg catttgtcat			1452
ttagcaagat ggcagcagtc cagctgttct ttgcagctgg agatgaactt ttaaaaatcc			1512
ccttcacact taatgtactg accgagacag aagtacctga aaacagctgt gcatggcagg			1572
cccggcaata gcttctgacc cacagcacc gcgcctcaga agctacggtc acaactaaag			1632
gagtccaggg acttgctgca ggctgggggg cactgggtgg ttctcaccag caggctgcgg			1692

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cggaggatgt ggccgtgccc gccgagcact cttgatctga gctgacctgt gtgtgtgtgt	1872
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gactgaacaa gtcagcttga tgatcttaaa tgatggaagt ataggacgtt gcttatttta	2292
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caatttttta ttgttaaatt tgtggaata catggtcaca accgtggatc aaacaaggtc	2412
agtctaaagt ggcaggctct aggtgtgacc tgataccacc acccttctgt gcagcaccgg	2472
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atctgtctca taatcacagc acagctgcag acacaacaac gtgcagcatt ttttacataa	2592
aaatatggta gaattaattt atgacatgga aatgccttac gtggtatcac acttagtctt	2652
gaaaaaaaca ccaagggtgac gtttaaaatt tttagtacat atcctcaaat tggagctaag	2712
ttatacttct tttataacct tttgggcac tcggtcgagag aagacaagat tttctctatt	2772
tacagtgagg caataaatat gtttgccacc tttaaaaaaa aaaaa	2817

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 <212> DNA  
 <213> Homo sapiens

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 <222> (88)..(351)

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acgcgtccgg attgggaaaa caacgat	
atg gca gga gcc agt ctt ggg gcc	111
Met Ala Gly Ala Ser Leu Gly Ala	
1 5	

cgc ttc tac cgg cag atc aaa aga cat ccg ggg atc atc ccg atg atc	159
Arg Phe Tyr Arg Gln Ile Lys Arg His Pro Gly Ile Ile Pro Met Ile	
9 14 19 24	
ggc tta atc tgc ctg ggc atg ggc agc gct gcg ctt tac ttg ctg cga	207
Gly Leu Ile Cys Leu Gly Met Gly Ser Ala Ala Leu Tyr Leu Leu Arg	
25 30 35 40	
ctc gcc ctt cgc agc ccc gac gtc tgc tgg gac aga aag aac aac ccg	255
Leu Ala Leu Arg Ser Pro Asp Val Cys Trp Asp Arg Lys Asn Asn Pro	
41 46 51 56	
gag ccc tgg aac cgc ctg agc ccc aat gac caa tac aag ttc ctt gca	303
Glu Pro Trp Asn Arg Leu Ser Pro Asn Asp Gln Tyr Lys Phe Leu Ala	
57 62 67 72	
gtt tcc act gac tat aag aag ctg aag aag gac cgg cca gac ttc taa	351
Val Ser Thr Asp Tyr Lys Lys Leu Lys Lys Asp Arg Pro Asp Phe *	
73 78 83 88	
gccaggctgg gctgccagtg ccatgcaagc cacagccagc cagcccatcc actttctcca	411
ctcctccccg caggccccaa ggcatactc cggccaccct gtcccgctac tgcttacaca	471
ggccgggttc ccacgcagag gggaggctgc tccacccta ctctcctccc ttgctcccag	531
cagcgggaagc gcctctgacc cttggcttga gtccacagt ggggaggagg aggcaggcag	591
caccagcagg ggtccaccaa gagcccagac cagccctct gccctcctac ccgggcctcg	651
aagggtgtgg cacaggctac gtgttgagcg tggcctacgt gagccaacaa gaagcagggg	711
cctctgagtg ccaagcgacg tggcgggctc caggttagcc caggetctga gagccagccc	771
aggggcggcg ctgctcagct tgggctggtc cagggcctgc ccaggctggg gcacctttgc	831
ctcctgagge gcagcgcact cctcccctgc ccaagcctac tgctcccgc tgccgccagt	891
acccccctca gcccacacc tgggcctccc cctgccact cctcctcttg ctcccctctg	951
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aaaa	1015

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 <222> (88) .. (516)

<400> 244

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 ctctctacag agacgcggac cccagac atg agg agg ctc ctc ctg gtc acc 111  
 Met Arg Arg Leu Leu Leu Val Thr  
 1 5  
 agc ctg gtg gtt gtg ctg ctg tgg gag gca ggt gca gtc cca gca ccc 159  
 Ser Leu Val Val Val Leu Leu Trp Glu Ala Gly Ala Val Pro Ala Pro  
 9 14 19 24  
 aag gtc cct atc aag atg caa gtc aaa cac tgg ccc tca gag cag gac 207  
 Lys Val Pro Ile Lys Met Gln Val Lys His Trp Pro Ser Glu Gln Asp  
 25 30 35 40  
 cca gag aag gcc tgg ggc gcc cgt gtg gtg gag cct ccg gag aag gac 255  
 Pro Glu Lys Ala Trp Gly Ala Arg Val Val Glu Pro Pro Glu Lys Asp  
 41 46 51 56  
 gac cag ctg gtg gtg ctg ttc cct gtc cag aag ccg aaa ctc ttg acc 303  
 Asp Gln Leu Val Val Leu Phe Pro Val Gln Lys Pro Lys Leu Leu Thr  
 57 62 67 72  
 acc gag gag aag cca cga ggc acc aag gcc tgg atg gag acc gag gac 351  
 Thr Glu Glu Lys Pro Arg Gly Thr Lys Ala Trp Met Glu Thr Glu Asp  
 73 78 83 88  
 acc ctg ggc cgt gtc ctg agt ccc gag ccc gac cat gac agc ctg tac 399  
 Thr Leu Gly Arg Val Leu Ser Pro Glu Pro Asp His Asp Ser Leu Tyr  
 89 94 99 104  
 cac cct ccg cct gag gag gac cag ggc gag gag agg ccc cgg ttg tgg 447  
 His Pro Pro Pro Glu Glu Asp Gln Gly Glu Glu Arg Pro Arg Leu Trp  
 105 110 115 120  
 gtg atg cca aat cac cag gtg ctc ctg gga ccg gag gaa gac caa gac 495  
 Val Met Pro Asn His Gln Val Leu Leu Gly Pro Glu Glu Asp Gln Asp  
 121 126 131 136  
 cac atc tac cac ccc cag tag gg ctccaggggc catcactgcc cccgcctgt 548  
 His Ile Tyr His Pro Gln \*  
 137 142  
 cccaaggccc aggctgttgg gactgggacc ctccctaccc tgccccagct agacaaataa 608  
 accccagcag gccgggaaaa aaaaaaaa 636

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 <212> DNA  
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<220>  
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<400> 245

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ctctctacag agacgcggac cccagac atg agg agg ctc ctc ctg gtc acc 111  
Met Arg Arg Leu Leu Leu Val Thr  
1 5

agc ctg gtg gtt gtg ctg ctg tgg gag gca ggt gca gtc cca gca ccc 159  
Ser Leu Val Val Val Leu Leu Trp Glu Ala Gly Ala Val Pro Ala Pro  
9 14 19 24

aag gtc cct atc aag atg caa gtc aaa cac tgg ccc tca gag cag gac 207  
Lys Val Pro Ile Lys Met Gln Val Lys His Trp Pro Ser Glu Gln Asp  
25 30 35 40

cca gag aag gcc tgg ggc gcc cgt gtg gtg gag cct ccg gag aag gac 255  
Pro Glu Lys Ala Trp Gly Ala Arg Val Val Glu Pro Pro Glu Lys Asp  
41 46 51 56

gac cag ctg gtg gtg ctg ttc cct gtc cag aag ccg aaa ctc ttg acc 303  
Asp Gln Leu Val Val Leu Phe Pro Val Gln Lys Pro Lys Leu Leu Thr  
57 62 67 72

acc gag gag aag cca cga ggt cag ggc agg ggc ccc atc ctt cca ggc 351  
Thr Glu Glu Lys Pro Arg Gly Gln Gly Arg Gly Pro Ile Leu Pro Gly  
73 78 83 88

acc aag gcc tgg atg gag acc gag gac acc ctg ggc cgt gtc ctg agt 399  
Thr Lys Ala Trp Met Glu Thr Glu Asp Thr Leu Gly Arg Val Leu Ser  
89 94 99 104

ccc gag ccc gac cat gac agc ctg tac cac cct ccg cct gag gag gac 447  
Pro Glu Pro Asp His Asp Ser Leu Tyr His Pro Pro Pro Glu Glu Asp  
105 110 115 120

cag ggc gag gag agg ccc cgg ttg tgg gtg atg cca aat cac cag gtg 495  
Gln Gly Glu Glu Arg Pro Arg Leu Trp Val Met Pro Asn His Gln Val  
121 126 131 136

ctc ctg gga ccg gag gaa gac caa gac cac atc tac cac ccc cag tag 543  
Leu Leu Gly Pro Glu Glu Asp Gln Asp His Ile Tyr His Pro Gln \*  
137 142 147 152

ggctccaggg gccatcactg cccccgcct gtcccaaggc ccaggctgtt gggactggga 603

ccctccctac cctgccccag ctagacaaat aaaccccagc aggcgcgggaa aaaaaaaaaa 663

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<220>

<221> CDS

<222> (13) .. (1599)

<400> 246

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	Met Ala Ala Val Leu Asn Ala Glu Arg Leu Glu Val	
	1 5 10	
tcc gtc gac ggc ctc acg ctc agc ccg gac ccg gag gag cgg cct ggg	96	
Ser Val Asp Gly Leu Thr Leu Ser Pro Asp Pro Glu Glu Arg Pro Gly		
13 18 23 28		
gcg gag ggc gcc ccg ctg ctg ccg cca ccg ctg cca ccg ccc tcg cca	144	
Ala Glu Gly Ala Pro Leu Leu Pro Pro Pro Leu Pro Pro Pro Ser Pro		
29 34 39 44		
cct gga tcc ggt cgc ggc ccg ggc gcc tca ggg gag cag ccc gag ccc	192	
Pro Gly Ser Gly Arg Gly Pro Gly Ala Ser Gly Glu Gln Pro Glu Pro		
45 50 55 60		
ggg gag gcg gcg gct ggg ggc gcg gcg gag gag gcg cgg cgg ctg gag	240	
Gly Glu Ala Ala Ala Gly Gly Ala Ala Glu Glu Ala Arg Arg Leu Glu		
61 66 71 76		
cag cgc tgg ggt ttc ggc ctg gag gag ttg tac ggc ctg gca ctg cgc	288	
Gln Arg Trp Gly Phe Gly Leu Glu Glu Leu Tyr Gly Leu Ala Leu Arg		
77 82 87 92		
ttc ttc aaa gaa aaa gat ggc aaa gca ttt cat cca act tat gaa gaa	336	
Phe Phe Lys Glu Lys Asp Gly Lys Ala Phe His Pro Thr Tyr Glu Glu		
93 98 103 108		
aaa ttg aag ctt gtg gca ctg cat aag caa gtt ctt atg ggc cca tat	384	
Lys Leu Lys Leu Val Ala Leu His Lys Gln Val Leu Met Gly Pro Tyr		
109 114 119 124		
aat cca gac act tgt cct gag gtt gga ttc ttt gat gtg ttg ggg aat	432	
Asn Pro Asp Thr Cys Pro Glu Val Gly Phe Phe Asp Val Leu Gly Asn		
125 130 135 140		
gac agg agg aga gaa tgg gca gcc ctg gga aac atg tct aaa gag gat	480	
Asp Arg Arg Arg Glu Trp Ala Ala Leu Gly Asn Met Ser Lys Glu Asp		
141 146 151 156		
gcc atg gtg gag ttt gtc aag ctc tta aat agg tgt tgc cat ctc ttt	528	
Ala Met Val Glu Phe Val Lys Leu Leu Asn Arg Cys Cys His Leu Phe		
157 162 167 172		
tca aca tat gtt gcg tcc cac aaa ata gag aag gaa gag caa gac aaa	576	
Ser Thr Tyr Val Ala Ser His Lys Ile Glu Lys Glu Glu Gln Asp Lys		
173 178 183 188		
aaa agg aag gag gaa gag gag cga agg cat cgt gaa gag gaa gaa aga	624	
Lys Arg Lys Glu Glu Glu Glu Arg Arg His Arg Glu Glu Glu Glu Arg		
189 194 199 204		
gaa cgt ctg caa aag gag gaa gag aaa cgt agg aga gaa gaa gag gaa	672	

Glu Arg Leu Gln Lys	Glu Glu Glu Lys Arg Arg Arg Glu Glu Glu Glu	
205	210 215 220	
agg ctt cga cgg gag	gaa gag gaa agg aga cgg ata gaa gaa gaa agg	720
Arg Leu Arg Arg Glu	Glu Glu Glu Arg Arg Arg Ile Glu Glu Glu Arg	
221	226 231 236	
ctt cgg ttg gag cag	caa aag cag cag ata atg gca gct tta aac tcc	768
Leu Arg Leu Glu Gln	Gln Lys Gln Gln Ile Met Ala Ala Leu Asn Ser	
237	242 247 252	
cag act gcc gtg cag	ttc cag cag tat gca gcc caa cag tat cca ggg	816
Gln Thr Ala Val Gln	Phe Gln Gln Tyr Ala Ala Gln Gln Tyr Pro Gly	
253	258 263 268	
aac tac gaa cag cag	caa att ctc atc cgc cag ttg cag gag caa cac	864
Asn Tyr Glu Gln Gln	Gln Ile Leu Ile Arg Gln Leu Gln Glu Gln His	
269	274 279 284	
tat cag cag tac atg	cag cag ttg tat caa gtc cag ctt gca cag caa	912
Tyr Gln Gln Tyr Met	Gln Gln Leu Tyr Gln Val Gln Leu Ala Gln Gln	
285	290 295 300	
cag gca gca tta cag	aaa caa cag gaa gta gta gtg gct ggg tot tcc	960
Gln Ala Ala Leu Gln	Lys Gln Gln Glu Val Val Val Ala Gly Ser Ser	
301	306 311 316	
ttg cct aca tca tca	aaa gtg aat gca act gta cca agt aat atg atg	1008
Leu Pro Thr Ser Ser	Lys Val Asn Ala Thr Val Pro Ser Asn Met Met	
317	322 327 332	
tca gtt aat gga cag	gcc aaa aca cac act gac agc tcc gaa aaa gaa	1056
Ser Val Asn Gly Gln	Ala Lys Thr His Thr Asp Ser Ser Glu Lys Glu	
333	338 343 348	
ctg gaa cca gaa gct	gca gaa gaa gcc ctg gag aat gga cca aaa gaa	1104
Leu Glu Pro Glu Ala	Ala Glu Glu Ala Leu Glu Asn Gly Pro Lys Glu	
349	354 359 364	
tot ctt cca gta ata	gca gct cca tcc atg tgg aca cga cct cag atc	1152
Ser Leu Pro Val Ile	Ala Ala Pro Ser Met Trp Thr Arg Pro Gln Ile	
365	370 375 380	
aaa gac ttc aaa gag	aag att cag cag gat gca gat tcc gtg att aca	1200
Lys Asp Phe Lys Glu	Lys Ile Gln Gln Asp Ala Asp Ser Val Ile Thr	
381	386 391 396	
gtg ggc cga gga gaa	gtg gtc act gtt cga gta ccc acc cat gaa gaa	1248
Val Gly Arg Gly Glu	Val Val Thr Val Arg Val Pro Thr His Glu Glu	
397	402 407 412	
gga tca tat ctc ttt	tgg gaa ttt gcc aca gac aat tat gac att ggg	1296
Gly Ser Tyr Leu Phe	Trp Glu Phe Ala Thr Asp Asn Tyr Asp Ile Gly	
413	418 423 428	
ttt ggg gtg tat ttt	gaa tgg aca gac tct cca aac act gct gtc agc	1344
Phe Gly Val Tyr Phe	Glu Trp Thr Asp Ser Pro Asn Thr Ala Val Ser	

429	434	439	444			
gtg cat gtc agt gag tcc agc gat gac gac gag gag gaa gaa gaa aac				1392		
Val His Val Ser Glu Ser Ser Asp Asp Asp Glu Glu Glu Glu Glu Asn						
445	450	455	460			
atc ggt tgt gaa gag aaa gcc aaa aag aat gcc aac aag cct ttg ctg				1440		
Ile Gly Cys Glu Glu Lys Ala Lys Lys Asn Ala Asn Lys Pro Leu Leu						
461	466	471	476			
gat gag att gtg cct gtg tac cga cgg gac tgt cat gag gag gtg tat				1488		
Asp Glu Ile Val Pro Val Tyr Arg Arg Asp Cys His Glu Glu Val Tyr						
477	482	487	492			
gct ggc agc cat caa tat cca ggg aga gga gtc tat ctc ctc aag ttt				1536		
Ala Gly Ser His Gln Tyr Pro Gly Arg Gly Val Tyr Leu Leu Lys Phe						
493	498	503	508			
gac aac tcc tac tct ttg tgg cgg tca aaa tca gtc tac tac aga gtc				1584		
Asp Asn Ser Tyr Ser Leu Trp Arg Ser Lys Ser Val Tyr Tyr Arg Val						
509	514	519	524			
tat tat act aga taa aaatgttggt acaaagtctg gagtctaggg ttgggcagaa				1639		
Tyr Tyr Thr Arg *						
525						
gatgacattt aatttgga aa tttcttttta cttttgtgga gcattagagt cacagtttac				1699		
cttattgata ttggtctgat gggtttgtgaa ctcttgcctgg gaatcaaaat ttccttgaga				1759		
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aaattaagga ttttataaac tcaaattggc acctactgaa ttaaaatata taaaatcatt				2479		
taaatataat tcagcatatg ggaagtaaca ttgcactaat atggaaatca ctgccagaga				2539		
cagtctat	tttttaatt	tggtactact	tagtcacaaa	ccccacatta	ttccagtttg	2599

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 aaagcaggca ctaatatata tttcttcag ctttgatta caaatttgct cttgcacatg 3319  
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 gttctctctt gcacagccta aaatgaccaa tgtgtgattt cagtgggaata a atg gcg 177  
 Met Ala  
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 tcc aaa gtc aca gat gct ata gtc tgg tat caa aag aag att gga gca 225  
 Ser Lys Val Thr Asp Ala Ile Val Trp Tyr Gln Lys Lys Ile Gly Ala  
 3 8 13 18  
 tat gaa caa caa ata tgg gaa aaa tct gtt gaa cag aga gaa atc aag 273  
 Tyr Glu Gln Gln Ile Trp Glu Lys Ser Val Glu Gln Arg Glu Ile Lys  
 19 24 29 34

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Phe Ile Lys Leu Gly Leu Arg Asn Lys Pro Lys Lys Thr Ala His Val	
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Lys Pro Asp Leu Ile Asp Val Asp Leu Val Arg Gly Ser Ala Phe Ala	
51 56 61 66	
aag gca aag cct gaa agt cct tgg act tct cta cca aga aag gga att	417
Lys Ala Lys Pro Glu Ser Pro Trp Thr Ser Leu Pro Arg Lys Gly Ile	
67 72 77 82	
gtt cga gtt gta ttt ttc ccc ttt ttc ttc cgg tgg tgg tta caa gta	465
Val Arg Val Val Phe Phe Pro Phe Phe Phe Arg Trp Trp Leu Gln Val	
83 88 93 98	
aca tca aag gtc atc ttt ttc tgg ctt ctt gtc ctt tat ctt ctt caa	513
Thr Ser Lys Val Ile Phe Phe Trp Leu Leu Val Leu Tyr Leu Leu Gln	
99 104 109 114	
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Val Ala Ala Ile Val Leu Phe Cys Ser Thr Ser Ser Pro His Ser Ile	
115 120 125 130	
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Pro Leu Thr Glu Val Ile Gly Pro Ile Trp Leu Met Leu Leu Leu Gly	
131 136 141 146	
act gtg cat tgc cag att gtt tcc aca aga aca ccc aaa cct cct cta	657
Thr Val His Cys Gln Ile Val Ser Thr Arg Thr Pro Lys Pro Pro Leu	
147 152 157 162	
agt aca ggg ggt aaa aga aga agg aaa tta aga aaa gca gcc cat ttg	705
Ser Thr Gly Gly Lys Arg Arg Arg Lys Leu Arg Lys Ala Ala His Leu	
163 168 173 178	
gaa gta cat agg gaa gga gat ggt tct agt acc aca gat aac aca caa	753
Glu Val His Arg Glu Gly Asp Gly Ser Ser Thr Thr Asp Asn Thr Gln	
179 184 189 194	
gag gga gca gtt cag aac cac ggt aca agc acc tct cac agc gtt ggc	801
Glu Gly Ala Val Gln Asn His Gly Thr Ser Thr Ser His Ser Val Gly	
195 200 205 210	
act gtc ttc aga gat ctc tgg cat gct gct ttc ttt tta tca gga tca	849
Thr Val Phe Arg Asp Leu Trp His Ala Ala Phe Phe Leu Ser Gly Ser	
211 216 221 226	
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Lys Lys Ala Lys Asn Ser Ile Asp Lys Ser Thr Glu Thr Asp Asn Gly	
227 232 237 242	
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Tyr Val Ser Leu Asp Gly Lys Lys Thr Val Lys Ser Gly Glu Asp Gly	
243 248 253 258	

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Ile Gln Asn His Glu Pro Gln Cys Glu Thr Ile Arg Pro Glu Glu Thr	
259 264 269 274	
gcc tgg aac aca gga aca ctg agg aat ggt cct agc aaa gat acc caa	1041
Ala Trp Asn Thr Gly Thr Leu Arg Asn Gly Pro Ser Lys Asp Thr Gln	
275 280 285 290	
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Arg Thr Ile Thr Asn Val Ser Asp Glu Val Ser Ser Glu Glu Gly Pro	
291 296 301 306	
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Glu Thr Gly Tyr Ser Leu Arg Arg His Val Asp Arg Thr Ser Glu Gly	
307 312 317 322	
gtt ctt cgg aat aga aag tca cac cat tat aag aaa cat tac cct aat	1185
Val Leu Arg Asn Arg Lys Ser His His Tyr Lys Lys His Tyr Pro Asn	
323 328 333 338	
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Glu Asp Ala Pro Lys Ser Gly Thr Ser Cys Ser Ser Arg Cys Ser Ser	
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Ser Arg Gln Asp Ser Glu Ser Ala Arg Pro Glu Ser Glu Thr Glu Asp	
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Val Leu Trp Glu Asp Leu Leu His Cys Ala Glu Cys His Ser Ser Cys	
371 376 381 386	
acc agt gag aca gat gtg gaa aat cat cag att aat cca tgt gtg aaa	1377
Thr Ser Glu Thr Asp Val Glu Asn His Gln Ile Asn Pro Cys Val Lys	
387 392 397 402	
aaa gaa tat aga gat gac cct ttt cat cag agt cat ttg ccc tgg ctc	1425
Lys Glu Tyr Arg Asp Asp Pro Phe His Gln Ser His Leu Pro Trp Leu	
403 408 413 418	
cat agt tcc cac cca gga tta gaa aaa ata agt gct ata gta tgg gaa	1473
His Ser Ser His Pro Gly Leu Glu Lys Ile Ser Ala Ile Val Trp Glu	
419 424 429 434	
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Gly Asn Asp Cys Lys Lys Ala Asp Met Ser Val Leu Glu Ile Ser Gly	
435 440 445 450	
atg ata atg aac aga gtg aac agc cat ata cca gga ata gga tac cag	1569
Met Ile Met Asn Arg Val Asn Ser His Ile Pro Gly Ile Gly Tyr Gln	
451 456 461 466	
att ttt gga aat gca gtc tct ctc ata ctg ggt tta act cca ttt gtt	1617
Ile Phe Gly Asn Ala Val Ser Leu Ile Leu Gly Leu Thr Pro Phe Val	
467 472 477 482	
ttc cga ctt tct caa gct aca gac ttg gaa caa ctc aca gca cat tct	1665

Phe	Arg	Leu	Ser	Gln	Ala	Thr	Asp	Leu	Glu	Gln	Leu	Thr	Ala	His	Ser	
483					488					493					498	
gct	tca	gaa	ctt	tat	gtg	att	gca	ttt	ggg	tct	aat	gaa	gat	gtc	ata	1713
Ala	Ser	Glu	Leu	Tyr	Val	Ile	Ala	Phe	Gly	Ser	Asn	Glu	Asp	Val	Ile	
499					504					509					514	
ggt	ctt	tct	atg	gtt	ata	ata	agt	ttt	gtg	gtt	cgc	gtg	tct	ctt	gtg	1761
Val	Leu	Ser	Met	Val	Ile	Ile	Ser	Phe	Val	Val	Arg	Val	Ser	Leu	Val	
515					520					525					530	
tgg	att	ttc	ttt	ttt	ttg	ctc	tgt	gta	gca	gaa	aga	act	tat	aaa	cag	1809
Trp	Ile	Phe	Phe	Phe	Leu	Leu	Cys	Val	Ala	Glu	Arg	Thr	Tyr	Lys	Gln	
531					536					541					546	
gtg	ggg	ata	atg	tag	acttccgaat	aagaatattt	tatcggttttc	ataatattaa								1864
Val	Gly	Ile	Met	*												
547																
aagtattcct	gaagtacttt	attattttcat	tatatcattt	ttacctaat	attttttttt											1924
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ttttcctact	tacattgtaa	atggggccaca		atg gaa gag ctc	gaa aag gat											171
				Met	Glu Glu Leu Glu Lys Asp											
				1	5											
cct cgc atc	gca cag aag	atc aag cga	ttt agg aat	aaa caa gcc	cag											219
Pro Arg Ile	Ala Gln Lys	Ile Lys Arg	Phe Arg Asn	Lys Gln Ala	Gln											
8	13	18	23													
atg aag cac	att ttt acg	gag gat tca	gtg agg gac	ttt gca aaa	cct											267
Met Lys His	Ile Phe Thr	Glu Asp Ser	Val Arg Asp	Phe Ala Lys	Pro											
24	29	34	39													
gag ggc agc	tgc aag agg	act gtc atg	gtg gga atg	ggg cat agg	tgg											315
Glu Gly Ser	Cys Lys Arg	Thr Val Met	Val Gly Met	Gly His Arg	Trp											
40	45	50	55													
aga gcg gac	tgc aca atg	cct gat gaa	gac ttg ttc	aat cca gac	tat											363

Arg	Ala	Asp	Cys	Thr	Met	Pro	Asp	Glu	Asp	Leu	Phe	Asn	Pro	Asp	Tyr	
56					61					66					71	
gta	gaa	gtt	gat	cgc	atc	ttg	gag	gtg	gcc	cac	acc	aag	gat	gca	gaa	411
Val	Glu	Val	Asp	Arg	Ile	Leu	Glu	Val	Ala	His	Thr	Lys	Asp	Ala	Glu	
72					77					82					87	
aca	ggg	gag	gag	gta	aca	cat	tac	ctg	gtg	aag	tgg	tgc	tca	cta	cca	459
Thr	Gly	Glu	Glu	Val	Thr	His	Tyr	Leu	Val	Lys	Trp	Cys	Ser	Leu	Pro	
88					93					98					103	
tat	gaa	gaa	agc	acg	tgg	gag	cta	gag	gaa	gat	gta	gat	cct	gca	aaa	507
Tyr	Glu	Glu	Ser	Thr	Trp	Glu	Leu	Glu	Glu	Asp	Val	Asp	Pro	Ala	Lys	
104					109					114					119	
gtt	aaa	gaa	ttt	gaa	tct	ctt	caa	gtt	ctc	cct	gaa	att	aag	cat	gtg	555
Val	Lys	Glu	Phe	Glu	Ser	Leu	Gln	Val	Leu	Pro	Glu	Ile	Lys	His	Val	
120					125					130					135	
gag	cgg	cct	gct	tca	gac	tcc	tgg	cag	aaa	ctt	gag	aag	tct	cgc	gag	603
Glu	Arg	Pro	Ala	Ser	Asp	Ser	Trp	Gln	Lys	Leu	Glu	Lys	Ser	Arg	Glu	
136					141					146					151	
tat	aag	aac	agt	aac	cag	ctc	cgg	gag	tac	cag	ctg	gaa	ggg	atg	aac	651
Tyr	Lys	Asn	Ser	Asn	Gln	Leu	Arg	Glu	Tyr	Gln	Leu	Glu	Gly	Met	Asn	
152					157					162					167	
tgg	ctt	ctt	ttt	aac	tgg	tat	aac	aga	aaa	aac	tgt	att	ttg	gct	gat	699
Trp	Leu	Leu	Phe	Asn	Trp	Tyr	Asn	Arg	Lys	Asn	Cys	Ile	Leu	Ala	Asp	
168					173					178					183	
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Glu	Met	Gly	Leu	Gly	Lys	Thr	Ile	Gln	Ser	Ile	Thr	Phe	Leu	Ser	Glu	
184					189					194					199	
ata	ttt	ctg	aga	gga	atc	cac	ggc	cct	ttt	ctc	att	atc	gcc	cct	ctc	795
Ile	Phe	Leu	Arg	Gly	Ile	His	Gly	Pro	Phe	Leu	Ile	Ile	Ala	Pro	Leu	
200					205					210					215	
tcc	acc	atc	act	aac	tgg	gag	cgg	gag	ttc	cgg	aca	tgg	aca	gag	atg	843
Ser	Thr	Ile	Thr	Asn	Trp	Glu	Arg	Glu	Phe	Arg	Thr	Trp	Thr	Glu	Met	
216					221					226					231	
aat	gcc	att	gtg	tac	cac	ggc	agc	cag	atc	agc	agg	cag	atg	atc	cag	891
Asn	Ala	Ile	Val	Tyr	His	Gly	Ser	Gln	Ile	Ser	Arg	Gln	Met	Ile	Gln	
232					237					242					247	
cag	tat	gaa	atg	gtg	tac	aga	gac	gcc	cag	gga	aac	ccc	ctt	tca	gga	939
Gln	Tyr	Glu	Met	Val	Tyr	Arg	Asp	Ala	Gln	Gly	Asn	Pro	Leu	Ser	Gly	
248					253					258					263	
gtc	ttc	aag	ttc	cac	gtc	gtc	atc	aca	aca	ttt	gaa	atg	atc	cta	gca	987
Val	Phe	Lys	Phe	His	Val	Val	Ile	Thr	Thr	Phe	Glu	Met	Ile	Leu	Ala	
264					269					274					279	
gac	tgc	cca	gag	ttg	aag	aag	att	cac	tgg	agc	tgt	gtg	ata	att	gat	1035
Asp	Cys	Pro	Glu	Leu	Lys	Lys	Ile	His	Trp	Ser	Cys	Val	Ile	Ile	Asp	

280	285	290	295	
gaa gcc cac aga ctg	aag aat agg aac tgc	aaa ctt ctg gag ggt	cta	1083
Glu Ala His Arg Leu	Lys Asn Arg Asn Cys	Lys Leu Leu Glu Gly	Leu	
296	301	306	311	
aag ctt atg gcc ctg	gaa cat aaa gtg ctt	ctc act gga aca ccc	ttg	1131
Lys Leu Met Ala Leu	Glu His Lys Val Leu	Leu Thr Gly Thr Pro	Leu	
312	317	322	327	
cag aac tct gtg gag	gag ctc ttc agt ttg	tta aat ttt ctg gag	cca	1179
Gln Asn Ser Val Glu	Glu Leu Phe Ser Leu	Leu Asn Phe Leu Glu	Pro	
328	333	338	343	
tca cag ttt cct tca	gag acc gct ttc ttg	gag gaa ttt gga gat	ctg	1227
Ser Gln Phe Pro Ser	Glu Thr Ala Phe Leu	Glu Glu Phe Gly Asp	Leu	
344	349	354	359	
aaa aca gag gag cag	gta aag aaa ctg cag	tct atc cta aaa cca	atg	1275
Lys Thr Glu Glu Gln	Val Lys Lys Leu Gln	Ser Ile Leu Lys Pro	Met	
360	365	370	375	
atg ctt cgg cgg ctg	aaa gat gat gtg gaa	aag aac ctt gct ccc	aaa	1323
Met Leu Arg Arg Leu	Lys Asp Asp Val Glu	Lys Asn Leu Ala Pro	Lys	
376	381	386	391	
caa gag acg atc att	gag gtg gaa ctg acc	aat atc cag aaa aag	tac	1371
Gln Glu Thr Ile Ile	Glu Val Glu Leu Thr	Asn Ile Gln Lys Lys	Tyr	
392	397	402	407	
tac cgt gcc atc ctc	gag aag aac ttt tcc	ttc ctg acc aag ggg	gca	1419
Tyr Arg Ala Ile Leu	Glu Lys Asn Phe Ser	Phe Leu Thr Lys Gly	Ala	
408	413	418	423	
aat cag cac aac atg	ccc aat ctc atc aac	acc atg atg gag ctg	agg	1467
Asn Gln His Asn Met	Pro Asn Leu Ile Asn	Thr Met Met Glu Leu	Arg	
424	429	434	439	
aag tgc tgt aac cat	ccc tac ctg atc aat	gga gca gag gag aaa	att	1515
Lys Cys Cys Asn His	Pro Tyr Leu Ile Asn	Gly Ala Glu Glu Lys	Ile	
440	445	450	455	
cta gaa gat ttc cga	aaa acc cac agc cct	gat gcc cct gac ttt	cag	1563
Leu Glu Asp Phe Arg	Lys Thr His Ser Pro	Asp Ala Pro Asp Phe	Gln	
456	461	466	471	
ctg cag gcc atg att	cag gca gca gga aag	ctt gtg ttg att gat	aaa	1611
Leu Gln Ala Met Ile	Gln Ala Ala Gly Lys	Leu Val Leu Ile Asp	Lys	
472	477	482	487	
cta ctc cct aag ctg	att gca ggt ggc cac	aaa gta ctc atc ttc	tcc	1659
Leu Leu Pro Lys Leu	Ile Ala Gly Gly His	Lys Val Leu Ile Phe	Ser	
488	493	498	503	
cag atg gtg cgc tgc	ctc gac atc cta gaa	gat tac ctc atc cag	aga	1707
Gln Met Val Arg Cys	Leu Asp Ile Leu Glu	Asp Tyr Leu Ile Gln	Arg	
504	509	514	519	

aga tac acc tat gag cga att gat ggg cga gta cgg gga aac ctg cgc	1755
Arg Tyr Thr Tyr Glu Arg Ile Asp Gly Arg Val Arg Gly Asn Leu Arg	
520 525 530 535	
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Gln Ala Ala Ile Asp Arg Phe Cys Lys Pro Asp Ser Asp Arg Phe Val	
536 541 546 551	
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Phe Leu Leu Cys Thr Arg Ala Gly Gly Leu Gly Ile Asn Leu Thr Ala	
552 557 562 567	
gct gat acc tgc atc ata ttt gat tct gac tgg aac cca caa aat gac	1899
Ala Asp Thr Cys Ile Ile Phe Asp Ser Asp Trp Asn Pro Gln Asn Asp	
568 573 578 583	
ttg cag gtc cct gaa ggc aga att cag aaa gtg tgg gag cag atg tcc	1947
Leu Gln Val Pro Glu Gly Arg Ile Gln Lys Val Trp Glu Gln Met Ser	
584 589 594 599	
tgg cca aga gca cag cca caa gat aat gca gct gct gca tgt ctg cag	1995
Trp Pro Arg Ala Gln Pro Gln Asp Asn Ala Ala Ala Ala Cys Leu Gln	
600 605 610 615	
gat ttt gga agt cag ttg gga gtc cag agt gag gag aca ggc cct ttc	2043
Asp Phe Gly Ser Gln Leu Gly Val Gln Ser Glu Glu Thr Gly Pro Phe	
616 621 626 631	
cac aat cgc cag aag cag gac tca gga aac tcc cac act gct ccg agg	2091
His Asn Arg Gln Lys Gln Asp Ser Gly Asn Ser His Thr Ala Pro Arg	
632 637 642 647	
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Gly Arg Val Leu Thr Gly Leu Leu Ser Val Trp Ala Ala Leu Val Leu	
648 653 658 663	
agt ata gga att ctg gtg tca ttt tca gcc atg agg tta ggg gaa gaa	2187
Ser Ile Gly Ile Leu Val Ser Phe Ser Ala Met Arg Leu Gly Glu Glu	
664 669 674 679	
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Cys Gly Gln Gly Met Gly Gly Gly Phe His Ile Gln Gly Phe Trp His	
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Trp Ala Gln Ala Arg Cys His Arg Ile Gly Gln Ser Lys Ala Val Lys	
696 701 706 711	
gtg tat cgc ctc atc act cga aat tcc tac gag cgc gag atg ttt gac	2331
Val Tyr Arg Leu Ile Thr Arg Asn Ser Tyr Glu Arg Glu Met Phe Asp	
712 717 722 727	
aag gcc agc cta aag ctg ggg ctg gac aag gct gtt ctt cag gac atc	2379
Lys Ala Ser Leu Lys Leu Gly Leu Asp Lys Ala Val Leu Gln Asp Ile	
728 733 738 743	

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gaa gat gaa ggc tcc aag ttc tgt gaa gaa gac ata gac cag att ctg Glu Asp Glu Gly Ser Lys Phe Cys Glu Glu Asp Ile Asp Gln Ile Leu 776 781 786 791	2523
cag agg cga acg cac acc atc acc atc cag tct gag ggg aaa ggg tcc Gln Arg Arg Thr His Thr Ile Thr Ile Gln Ser Glu Gly Lys Gly Ser 792 797 802 807	2571
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tcc tta gat gat cct aac ttt tgg cag aaa tgg gct aaa ata gct gaa Ser Leu Asp Asp Pro Asn Phe Trp Gln Lys Trp Ala Lys Ile Ala Glu 824 829 834 839	2667
cta gac act gaa gca aag aat gaa aag gaa agc tta gtg atc gac cga Leu Asp Thr Glu Ala Lys Asn Glu Lys Glu Ser Leu Val Ile Asp Arg 840 845 850 855	2715
cct cgc gtg aga aag cag acc aaa cac tac aac tcg ttt gag gaa gac Pro Arg Val Arg Lys Gln Thr Lys His Tyr Asn Ser Phe Glu Glu Asp 856 861 866 871	2763
gag ctc atg gag ttt tca gag tta gac agc gac tca gac gaa agg ccc Glu Leu Met Glu Phe Ser Glu Leu Asp Ser Asp Ser Asp Glu Arg Pro 872 877 882 887	2811
acg aga tcc agg cgc ctc aat gac aaa gcc agg cgc tac ctc cga gcg Thr Arg Ser Arg Arg Leu Asn Asp Lys Ala Arg Arg Tyr Leu Arg Ala 888 893 898 903	2859
gag tgc ttc cgg gta gag aag aac ctg ctc atc ttt ggc tgg ggc cgg Glu Cys Phe Arg Val Glu Lys Asn Leu Leu Ile Phe Gly Trp Gly Arg 904 909 914 919	2907
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cat tat aag ggg gac gag aag atc aag agt ttc att tgg gaa ctg atc His Tyr Lys Gly Asp Glu Lys Ile Lys Ser Phe Ile Trp Glu Leu Ile 952 957 962 967	3051
aca cct acc aaa gat ggg caa gcc cag acc ctc cag aac cac tca ggc	3099



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Leu Gly Pro Gly Asn Gln Gly Tyr Trp Val Gln Glu Glu Met Phe Arg				
1208	1213	1218	1223	
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Arg Thr Ser Glu Met Asp Leu Ile Asn Lys Glu Ala Gln Lys Arg Trp				
1224	1229	1234	1239	
act agg aga gaa caa gca gac ttc tat aga aca gtg tct tcc ttt ggt				3915
Thr Arg Arg Glu Gln Ala Asp Phe Tyr Arg Thr Val Ser Ser Phe Gly				
1240	1245	1250	1255	
gtt gtt tac gat caa gaa aag aaa acc ttt gac tgg aca cag ttc cgc				3963
Val Val Tyr Asp Gln Glu Lys Lys Thr Phe Asp Trp Thr Gln Phe Arg				
1256	1261	1266	1271	
atc att tcc cgt ttg gac aag aag tcg gat gag agc ctg gaa cag tat				4011
Ile Ile Ser Arg Leu Asp Lys Lys Ser Asp Glu Ser Leu Glu Gln Tyr				
1272	1277	1282	1287	
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Phe Tyr Ser Phe Val Ala Met Cys Arg Asn Val Cys Arg Leu Pro Thr				
1288	1293	1298	1303	
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Trp Lys Asp Gly Gly Pro Pro Asp Thr Thr Ile Tyr Val Glu Pro Ile				
1304	1309	1314	1319	
act gag gaa cgt gct gca aga act ctg tac cgc att gaa ctg tta cgg				4155
Thr Glu Glu Arg Ala Ala Arg Thr Leu Tyr Arg Ile Glu Leu Leu Arg				
1320	1325	1330	1335	
aaa gtc cga gag caa gtg ctc aag tgc cct cag ctg cat gaa cgc ctc				4203
Lys Val Arg Glu Gln Val Leu Lys Cys Pro Gln Leu His Glu Arg Leu				
1336	1341	1346	1351	
cag ctg tgc agg ccc agc ctc tac ctc cca gtc tgg tgg gag tgt ggg				4251
Gln Leu Cys Arg Pro Ser Leu Tyr Leu Pro Val Trp Trp Glu Cys Gly				
1352	1357	1362	1367	
aag cat gat cga gac ctg ctc atc ggc act gcc aaa cat ggg ctg aac				4299
Lys His Asp Arg Asp Leu Leu Ile Gly Thr Ala Lys His Gly Leu Asn				
1368	1373	1378	1383	
cgc act gac tgt tac atc atg aac gac ccc cag ctg tcc ttc ctg gat				4347
Arg Thr Asp Cys Tyr Ile Met Asn Asp Pro Gln Leu Ser Phe Leu Asp				
1384	1389	1394	1399	
gcc tat aga aac tat gcc cag cat aaa aga tct ggc acc cag gca cca				4395
Ala Tyr Arg Asn Tyr Ala Gln His Lys Arg Ser Gly Thr Gln Ala Pro				
1400	1405	1410	1415	
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Gly Asn Leu Cys Cys Leu Tyr Gln Thr Asn Ser Lys Leu Tyr Glu Ser				
1416	1421	1426	1431	

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cct gaa aat cta gtg aga gta gaa agc aga gat gat cat ctc agc ctg Pro Glu Asn Leu Val Arg Val Glu Ser Arg Asp Asp His Leu Ser Leu	4539
1448 1453 1458 1463	
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1464 1469 1474 1479	
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1480 1485 1490 1495	
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1496 1501 1506 1511	
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1512 1517 1522 1527	
ata agc aaa gat ggg aac tgc cag tct ggt ggc cct gag gca gaa ata Ile Ser Lys Asp Gly Asn Cys Gln Ser Gly Gly Pro Glu Ala Glu Ile	4779
1528 1533 1538 1543	
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1544 1549 1554 1559	
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1560 1565 1570 1575	
gaa ggg gag ctc tgc tgc agt gag gca gga cag aga cct gaa aac att Glu Gly Glu Leu Cys Cys Ser Glu Ala Gly Gln Arg Pro Glu Asn Ile	4923
1576 1581 1586 1591	
ggc cag ctg gaa gcc aag tgt tta gct tcc cct tcc ttg aat cca gga Gly Gln Leu Glu Ala Lys Cys Leu Ala Ser Pro Ser Leu Asn Pro Gly	4971
1592 1597 1602 1607	
aat gaa agt ggg ttt gta gat atg tgc agt ctt agt gtc tgt gac tcc Asn Glu Ser Gly Phe Val Asp Met Cys Ser Leu Ser Val Cys Asp Ser	5019
1608 1613 1618 1623	
aaa aga aac ctg tca tca gat cag caa tta att gat tta ttg gaa aac Lys Arg Asn Leu Ser Ser Asp Gln Gln Leu Ile Asp Leu Leu Glu Asn	5067
1624 1629 1634 1639	
aaa agc tta gaa agt aaa ttg att ttg agt cag aac cac agt gat gag Lys Ser Leu Glu Ser Lys Leu Ile Leu Ser Gln Asn His Ser Asp Glu	5115
1640 1645 1650 1655	

gag gaa gaa gag gag gaa aac gag gag gaa aac tta gcc atg gca gta	5163
Glu Glu Glu Glu Glu Glu Asn Glu Glu Glu Asn Leu Ala Met Ala Val	
1656 1661 1666 1671	
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Gly Met Gly Glu Arg Pro Glu Val Leu His Leu Thr Glu Pro Thr Thr	
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Asn Ile Ser Arg Glu Lys Asn Gln Gly Phe Gln Asp Glu Thr Lys Lys	
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gga agc tta gag gtg gca aac cag act cct ggg cta cag agg gct ttc	5307
Gly Ser Leu Glu Val Ala Asn Gln Thr Pro Gly Leu Gln Arg Ala Phe	
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ccc gct cca gca gcc tgt cag tgc cac tgc aaa cac atg gag agg tgg	5355
Pro Ala Pro Ala Ala Cys Gln Cys His Cys Lys His Met Glu Arg Trp	
1720 1725 1730 1735	
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Met His Gly Leu Glu Asn Asp Glu Phe Glu Ile Glu Lys Pro Lys Ala	
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Tyr Ile Pro Asp Leu Phe Lys Ser Lys Thr Asn Thr Ile Ala Met Glu	
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Leu Leu Lys Glu Pro Trp Lys Glu Ser Ala Glu Gly Gln Asn Val Phe	
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Pro Thr Tyr Pro Leu Glu Gly Ser Glu Leu Lys Ser Glu Asp Met Asp	
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Phe Glu Asn Lys Asp Asp Tyr Asp Arg Asp Gly Asn Cys His Ser Gln	
1816 1821 1826 1831	
gat tat cca ggg aag tac tct gaa gag gag agc aag agc tca aca tcg	5691
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Gly Ile Thr Gly Asp Ile Gly Asp Glu Leu Gln Glu Ala Arg Ala Pro	
1848 1853 1858 1863	
act att gct cag ctg cta cag gag aaa act ctc tat tcc ttc tct gag	5787
Thr Ile Ala Gln Leu Glu Gln Glu Lys Thr Leu Tyr Ser Phe Ser Glu	
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tgg cca aag gac cgc gtg ata att aac cgc cta gat aat atc tgc cac	5835

Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys	Ala	Phe	Ile	Trp	Ser	Ser	Val	Leu	
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Thr	Arg	His	Lys	Arg	Val	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Glu	
387					392					397					402	
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403					408					413					418	
aga	agt	cat	act	gga	gag	aaa	ccc	tac	aaa	tgt	gaa	gaa	tgt	ggc	aaa	1531
Arg	Ser	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys	
419					424					429					434	
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Ala	Phe	Val	Ala	Ser	Ser	Thr	Leu	Ser	Lys	His	Glu	Ile	Ile	His	Thr	
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Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys	Ala	Phe	Asn	Gln	Ser	Ser	Ser	Leu	
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Thr	Lys	His	Lys	Lys	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Glu	
499					504					509					514	
gaa	tgt	ggc	aaa	gct	ttt	aac	cag	tcc	tca	acc	ctt	att	aaa	cat	aag	1819
Glu	Cys	Gly	Lys	Ala	Phe	Asn	Gln	Ser	Ser	Thr	Leu	Ile	Lys	His	Lys	
515					520					525					530	
aaa	att	cat	act	aga	gag	aaa	ccc	tac	aaa	tgt	gaa	gaa	tgt	ggc	aaa	1867
Lys	Ile	His	Thr	Arg	Glu	Lys	Pro	Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys	
531					536					541					546	
gct	ttt	cac	cta	tcc	aca	cac	ctt	act	aca	cat	aag	ata	ctt	cat	act	1915
Ala	Phe	His	Leu	Ser	Thr	His	Leu	Thr	Thr	His	Lys	Ile	Leu	His	Thr	
547					552					557					562	
gga	gag	aaa	cct	tat	aga	tgt	aga	gaa	tgt	ggc	aaa	gct	ttt	aac	cat	1963
Gly	Glu	Lys	Pro	Tyr	Arg	Cys	Arg	Glu	Cys	Gly	Lys	Ala	Phe	Asn	His	
563					568					573					578	
tct	gca	acc	ctt	tct	tca	cat	aag	aaa	atc	cat	tct	gga	gag	aaa	cca	2011
Ser	Ala	Thr	Leu	Ser	Ser	His	Lys	Lys	Ile	His	Ser	Gly	Glu	Lys	Pro	
579					584					589					594	
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Tyr	Glu	Cys	Asp	Lys	Cys	Gly	Lys	Ala	Phe	Ile	Ser	Pro	Ser	Ser	Leu	

595	600	605	610	
agt aga cat gag ata att cat act ggg gag aaa ccc tag aagtgtgaag				2108
Ser Arg His Glu Ile Ile His Thr Gly Glu Lys Pro *				
611	616	621		
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atctggaatt cgcgcccgcg tcgacggcag cgggacgcac catttcagtt gtgttcttgg	300
ttcatttctg gtctcggcg atg ttt cct aga gtc tcg acg ttc cta cct ctt	352
Met Phe Pro Arg Val Ser Thr Phe Leu Pro Leu	
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cgc ccc ctt tcc cgc cac cct ttg tcc tct gga agc ccg gag aca tca	400
Arg Pro Leu Ser Arg His Pro Leu Ser Ser Gly Ser Pro Glu Thr Ser	
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Ala Ala Ala Ile Met Leu Leu Thr Val Arg His Gly Thr Val Arg Tyr	
28 33 38 43	
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Arg Ser Ser Ala Leu Leu Ala Arg Thr Lys Asn Asn Ile Gln Arg Tyr	

44	49	54	59	
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Phe Gly Thr Asn Ser Val Ile Cys Ser Lys Lys Asp Lys Gln Ser Val				
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cga act gag gag act tcc aag gag act tca gag agc caa gac agt gaa				592
Arg Thr Glu Glu Thr Ser Lys Glu Thr Ser Glu Ser Gln Asp Ser Glu				
76	81	86	91	
aag gaa aat acg aaa aaa gac ttg tta ggc att att aag ggc atg aaa				640
Lys Glu Asn Thr Lys Lys Asp Leu Leu Gly Ile Ile Lys Gly Met Lys				
92	97	102	107	
gtt gaa tta agc aca gta aat gta cga aca aca aag ccc ccc aaa aga				688
Val Glu Leu Ser Thr Val Asn Val Arg Thr Thr Lys Pro Pro Lys Arg				
108	113	118	123	
aga cca ctt aaa agt ttg gaa gct aca ctt ggc agg ctt cga aga gct				736
Arg Pro Leu Lys Ser Leu Glu Ala Thr Leu Gly Arg Leu Arg Arg Ala				
124	129	134	139	
aca gaa tat gct cca aag aag aga att gag ccc ctg agt cct gag ttg				784
Thr Glu Tyr Ala Pro Lys Lys Arg Ile Glu Pro Leu Ser Pro Glu Leu				
140	145	150	155	
gtg gca gct gca tct gct gtg gca gat tct ctc cct ttt gat aag caa				832
Val Ala Ala Ala Ser Ala Val Ala Asp Ser Leu Pro Phe Asp Lys Gln				
156	161	166	171	
aca acc aag tca gag ctg ctg agc cag ctc cag cag cat gag gaa gag				880
Thr Thr Lys Ser Glu Leu Leu Ser Gln Leu Gln Gln His Glu Glu Glu				
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tca agg gca cag aga gat gca aag cga cct aaa att agt ttc agt aac				928
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Ile Ile Ser Asp Met Lys Val Ala Arg Ser Ala Thr Ala Arg Val Arg				
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Ser Arg Pro Glu Leu Arg Ile Gln Phe Asp Glu Gly Tyr Asp Asn Tyr				
220	225	230	235	
cct ggc cag gag aag acg gat gat ctt aaa aaa agg aaa aat ata ttc				1072
Pro Gly Gln Glu Lys Thr Asp Asp Leu Lys Lys Arg Lys Asn Ile Phe				
236	241	246	251	
aca ggg aaa aga ctt aat att ttt gac atg atg gca gtt act aaa gaa				1120
Thr Gly Lys Arg Leu Asn Ile Phe Asp Met Met Ala Val Thr Lys Glu				
252	257	262	267	
gca cct gaa aca gac aca tca cct tca ctt tgg gat gtg gaa ttt gct				1168
Ala Pro Glu Thr Asp Thr Ser Pro Ser Leu Trp Asp Val Glu Phe Ala				
268	273	278	283	

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Lys Gln Leu Ala Thr Val Asn Glu Gln Pro Leu Gln Asn Gly Phe Glu	
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Glu Leu Ile Gln Trp Thr Lys Glu Gly Lys Leu Trp Glu Phe Pro Ile	
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Asn Asn Glu Ala Gly Phe Asp Asp Asp Gly Ser Glu Phe His Glu His	
316 321 326 331	
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Ile Phe Leu Glu Lys His Leu Glu Ser Phe Pro Lys Gln Gly Pro Ile	
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Arg His Phe Met Glu Leu Val Thr Cys Gly Leu Ser Lys Asn Pro Tyr	
348 353 358 363	
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Leu Ser Val Lys Gln Lys Val Glu His Ile Glu Trp Phe Arg Asn Tyr	
364 369 374 379	
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 aataatttta ctagagtttg tatatgttat gttgattatt acatttgatt tggctggtat	1621
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Met Phe Pro Arg Val Ser Thr Phe Leu Pro Leu	
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Arg Pro Leu Ser Arg His Pro Leu Ser Ser Gly Ser Pro Glu Thr Ser	
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Ala Ala Ala Ile Met Leu Leu Thr Val Arg His Gly Thr Val Arg Thr	
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Ser Glu Ser Gln Asp Ser Glu Lys Glu Asn Thr Lys Lys Asp Leu Leu	
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Gly Ile Ile Lys Gly Met Lys Val Glu Leu Ser Thr Val Asn Val Arg	
92 97 102 107	
aca aca aag ccc ccc aaa aga aga cca ctt aaa agt ttg gaa gct aca	688
Thr Thr Lys Pro Pro Lys Arg Arg Pro Leu Lys Ser Leu Glu Ala Thr	
108 113 118 123	
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gag ccc ctg agt cct gag ttg gtg gca gct gca tct gct gtg gca gat	784
Glu Pro Leu Ser Pro Glu Leu Val Ala Ala Ala Ser Ala Val Ala Asp	
140 145 150 155	
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Ser Leu Pro Phe Asp Lys Gln Thr Thr Lys Ser Glu Leu Leu Ser Gln	
156 161 166 171	

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Leu Gln Gln His Glu Glu Glu Ser Arg Ala Gln Arg Asp Ala Lys Arg	
172 177 182 187	
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Pro Lys Ile Ser Phe Ser Asn Ile Ile Ser Asp Met Lys Val Ala Arg	
188 193 198 203	
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204 209 214 219	
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220 225 230 235	
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Leu Trp Asp Val Glu Phe Ala Lys Gln Leu Ala Thr Val Asn Glu Gln	
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284 289 294 299	
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Lys Leu Trp Glu Phe Pro Ile Asn Asn Glu Ala Gly Phe Asp Asp Asp	
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Phe Pro Lys Gln Gly Pro Ile Arg His Phe Met Glu Leu Val Thr Cys	
332 337 342 347	
ggc ctt tcc aaa aac cca tat ctt agt gtt aaa cag aag gtt gaa cac	1408
Gly Leu Ser Lys Asn Pro Tyr Leu Ser Val Lys Gln Lys Val Glu His	
348 353 358 363	
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Ile Glu Trp Phe Arg Asn Tyr Phe Asn Glu Lys Lys Asp Ile Leu Lys	
364 369 374 379	
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Glu Ser Asn Ile Gln Phe Asn *	
380 385	
gagatggata ttacaactaa ataaaaataat ttactagag ttgtatatg ttatgttgat	1570

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gaaaaatatt cttgcatgga gaaaaatcat cagtattcat aggttcaaaa gaatatctgg	1690
gaattagtaa tacatttaag acaacaactc ctaacctttt tcttttctact cggtgaccat	1750
acttctttga aatacaatac aattactgga tgatatcaca gtactatgtt ataagagttg	1810
agatgattta tagacagata tatatgtaca tacgtttatt tgtttacatt tatacatata	1870
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accacgtgcg gccggaaggg aagtaacgtc agcctgagaa ctgagtagct gtactgtgtg	180
gcgcccttatt ctaggcactt gttgggcaga	231
atg tca cac ctg ccg atg aaa Met Ser His Leu Pro Met Lys	1 5
ctc ctg cgt aag aag atc gag aag cgg aac ctc aaa ttg cgg cag cgg	279
Leu Leu Arg Lys Lys Ile Glu Lys Arg Asn Leu Lys Leu Arg Gln Arg	8 13 18 23
aac cta aag ttt cag ggg gcc tca aat ctg acc cta tcg gaa act caa	327
Asn Leu Lys Phe Gln Gly Ala Ser Asn Leu Thr Leu Ser Glu Thr Gln	24 29 34 39
aat gga gat gta tct gaa gaa aca atg gga agt aga aag gtt aaa aaa	375
Asn Gly Asp Val Ser Glu Glu Thr Met Gly Ser Arg Lys Val Lys Lys	40 45 50 55
tca aaa caa aag ccc atg aat gtg ggc tta tca gaa act caa aat gga	423
Ser Lys Gln Lys Pro Met Asn Val Gly Leu Ser Glu Thr Gln Asn Gly	56 61 66 71
ggc atg tct caa gaa gca gtg gga aat ata aaa gtt aca aag tct ccc	471
Gly Met Ser Gln Glu Ala Val Gly Asn Ile Lys Val Thr Lys Ser Pro	72 77 82 87

cag aaa tcc act gta tta agc aat gga gaa gca gca atg cag tct tcc	519
Gln Lys Ser Thr Val Leu Ser Asn Gly Glu Ala Ala Met Gln Ser Ser	
88 93 98 103	
aat tca gaa tca aaa aag aaa aag aag aaa aag aga aaa atg gtg aat	567
Asn Ser Glu Ser Lys Lys Lys Lys Lys Lys Arg Lys Met Val Asn	
104 109 114 119	
gat gct gag cct gat acg aaa aaa gca aaa act gaa aac aaa ggg aaa	615
Asp Ala Glu Pro Asp Thr Lys Lys Ala Lys Thr Glu Asn Lys Gly Lys	
120 125 130 135	
tct gaa gaa gaa agt gcc gag act act aaa gaa aca gaa aat aat gtg	663
Ser Glu Glu Glu Ser Ala Glu Thr Thr Lys Glu Thr Glu Asn Asn Val	
136 141 146 151	
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Glu Lys Pro Asp Asn Asp Glu Asp Glu Ser Glu Val Pro Ser Leu Pro	
152 157 162 167	
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Leu Gly Leu Thr Gly Ala Phe Glu Asp Thr Ser Phe Ala Ser Leu Cys	
168 173 178 183	
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Asn Leu Val Asn Glu Asn Thr Leu Lys Ala Ile Lys Glu Met Gly Phe	
184 189 194 199	
aca aac atg act gaa att cag cat aaa agt atc aga cca ctt ctg gaa	855
Thr Asn Met Thr Glu Ile Gln His Lys Ser Ile Arg Pro Leu Leu Glu	
200 205 210 215	
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Gly Arg Asp Leu Leu Ala Ala Ala Lys Thr Gly Ser Gly Lys Thr Leu	
216 221 226 231	
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Ala Phe Leu Ile Pro Ala Val Glu Leu Ile Val Lys Leu Arg Phe Met	
232 237 242 247	
ccc agg aat gga aca gga gtc ctt att ctc tca cct act aga gaa cta	999
Pro Arg Asn Gly Thr Gly Val Leu Ile Leu Ser Pro Thr Arg Glu Leu	
248 253 258 263	
gcc atg caa acc ttt ggt gtt ctt aag gag ctg atg act cac cac gtg	1047
Ala Met Gln Thr Phe Gly Val Leu Lys Glu Leu Met Thr His His Val	
264 269 274 279	
cat acc tat ggc ttg ata atg ggt ggc agt aac aga tct gct gaa gca	1095
His Thr Tyr Gly Leu Ile Met Gly Gly Ser Asn Arg Ser Ala Glu Ala	
280 285 290 295	
cag aaa ctt ggt aat ggg atc aac atc att gtg gcc aca cca ggc cgt	1143
Gln Lys Leu Gly Asn Gly Ile Asn Ile Ile Val Ala Thr Pro Gly Arg	
296 301 306 311	

Trp	Pro	Lys	Asp	Arg	Val	Ile	Ile	Asn	Arg	Leu	Asp	Asn	Ile	Cys	His	
1880					1885					1890					1895	
gtg	gtg	tta	aag	ggg	aag	tgg	ccc	tct	agc	cag	cag	tat	gag	ccc	tca	5883
Val	Val	Leu	Lys	Gly	Lys	Trp	Pro	Ser	Ser	Gln	Gln	Tyr	Glu	Pro	Ser	
1896					1901					1906					1911	
ggc	aca	ctg	ccc	acc	ccg	gta	tta	acc	agc	agt	gct	ggt	tct	cga	acc	5931
Gly	Thr	Leu	Pro	Thr	Pro	Val	Leu	Thr	Ser	Ser	Ala	Gly	Ser	Arg	Thr	
1912					1917					1922					1927	
agc	ctc	tca	gag	ccg	gaa	gca	gca	gaa	cac	agc	ttc	agc	aac	ggc	gca	5979
Ser	Leu	Ser	Glu	Pro	Glu	Ala	Ala	Glu	His	Ser	Phe	Ser	Asn	Gly	Ala	
1928					1933					1938					1943	
gca	ttg	gcg	gcc	cag	atc	cac	aag	gag	agc	ttc	tta	gct	cca	gta	ttc	6027
Ala	Leu	Ala	Ala	Gln	Ile	His	Lys	Glu	Ser	Phe	Leu	Ala	Pro	Val	Phe	
1944					1949					1954					1959	
aca	aag	gat	gaa	caa	aag	cac	agg	cgt	ccc	tat	gag	ttt	gag	gtg	gag	6075
Thr	Lys	Asp	Glu	Gln	Lys	His	Arg	Arg	Pro	Tyr	Glu	Phe	Glu	Val	Glu	
1960					1965					1970					1975	
agg	gat	gca	aag	gct	cgg	ggc	ctg	gag	cag	ttc	tct	gcc	acc	cac	ggg	6123
Arg	Asp	Ala	Lys	Ala	Arg	Gly	Leu	Glu	Gln	Phe	Ser	Ala	Thr	His	Gly	
1976					1981					1986					1991	
cac	acc	cct	atc	atc	ctc	aat	ggc	tgg	cat	ggg	gag	tca	gct	atg	gac	6171
His	Thr	Pro	Ile	Ile	Leu	Asn	Gly	Trp	His	Gly	Glu	Ser	Ala	Met	Asp	
1992					1997					2002					2007	
ctc	tcc	tgc	tca	tca	gag	ggg	tcc	cca	gga	gcc	aca	tcc	cct	ttc	cca	6219
Leu	Ser	Cys	Ser	Ser	Glu	Gly	Ser	Pro	Gly	Ala	Thr	Ser	Pro	Phe	Pro	
2008					2013					2018					2023	
gtg	agc	gcc	agc	acc	cct	aag	att	ggg	gct	atc	agt	tca	ctt	cag	gga	6267
Val	Ser	Ala	Ser	Thr	Pro	Lys	Ile	Gly	Ala	Ile	Ser	Ser	Leu	Gln	Gly	
2024					2029					2034					2039	
gcc	ctt	ggc	atg	gac	ttg	tct	ggg	att	ctg	caa	gct	ggc	ctg	atc	cat	6315
Ala	Leu	Gly	Met	Asp	Leu	Ser	Gly	Ile	Leu	Gln	Ala	Gly	Leu	Ile	His	
2040					2045					2050					2055	
cct	gtg	act	gga	cag	att	gtc	aat	gga	agc	ctc	aga	aga	gat	gat	gca	6363
Pro	Val	Thr	Gly	Gln	Ile	Val	Asn	Gly	Ser	Leu	Arg	Arg	Asp	Asp	Ala	
2056					2061					2066					2071	
gcc	acg	agg	agg	cgg	aga	ggg	agg	cgg	aaa	cat	gtt	gaa	gga	ggg	atg	6411
Ala	Thr	Arg	Arg	Arg	Arg	Gly	Arg	Arg	Lys	His	Val	Glu	Gly	Gly	Met	
2072					2077					2082					2087	
gac	ctc	atc	ttt	ttg	aag	gag	cag	aca	ctt	cag	gcg	gga	atc	ttg	gaa	6459
Asp	Leu	Ile	Phe	Leu	Lys	Glu	Gln	Thr	Leu	Gln	Ala	Gly	Ile	Leu	Glu	
2088					2093					2098					2103	
gtc	cat	gaa	gac	cca	ggg	cag	gcc	acc	ttg	agc	acc	aca	cac	cct	gag	6507
Val	His	Glu	Asp	Pro	Gly	Gln	Ala	Thr	Leu	Ser	Thr	Thr	His	Pro	Glu	

2104	2109	2114	2119	
ggg cca ggg cct gcc acc tcg gct cct gag cca gct acg gca gcc agc				6555
Gly Pro Gly Pro Ala Thr Ser Ala Pro Glu Pro Ala Thr Ala Ala Ser				
2120	2125	2130	2135	
agc caa gcc gag aaa tcc att ccc agc aag agt ctg ctt gac tgg cta				6603
Ser Gln Ala Glu Lys Ser Ile Pro Ser Lys Ser Leu Leu Asp Trp Leu				
2136	2141	2146	2151	
agg cag cag gct gac tac tcc tta gaa gtt cct ggc ttt ggg gca ggg				6651
Arg Gln Gln Ala Asp Tyr Ser Leu Glu Val Pro Gly Phe Gly Ala Gly				
2152	2157	2162	2167	
ttt ctt cca gaa aac aag ttc aat cac act ctg gct gag cct att ctt				6699
Phe Leu Pro Glu Asn Lys Phe Asn His Thr Leu Ala Glu Pro Ile Leu				
2168	2173	2178	2183	
cga gat acg ggc ccc cgc agg agg ggg agg cgg cct cgg agc gaa ctc				6747
Arg Asp Thr Gly Pro Arg Arg Arg Gly Arg Arg Pro Arg Ser Glu Leu				
2184	2189	2194	2199	
ctg aag gct cct tcc att gtg gca gac tct ccc tct gga atg ggg cca				6795
Leu Lys Ala Pro Ser Ile Val Ala Asp Ser Pro Ser Gly Met Gly Pro				
2200	2205	2210	2215	
ctg ttc atg aat gga ctg att gct ggg atg gac ctg gta gga ctt cag				6843
Leu Phe Met Asn Gly Leu Ile Ala Gly Met Asp Leu Val Gly Leu Gln				
2216	2221	2226	2231	
aac atg aga aat atg cca ggc atc ccc ctc acc ggg ctg gtg ggg ttt				6891
Asn Met Arg Asn Met Pro Gly Ile Pro Leu Thr Gly Leu Val Gly Phe				
2232	2237	2242	2247	
cca gct ggc ttt gcc acg atg cca aca ggt gaa gag gtc aaa agt acc				6939
Pro Ala Gly Phe Ala Thr Met Pro Thr Gly Glu Glu Val Lys Ser Thr				
2248	2253	2258	2263	
ctg agc atg ctg ccc atg atg ctg cca ggc atg gct gct gtg ccc cag				6987
Leu Ser Met Leu Pro Met Met Leu Pro Gly Met Ala Ala Val Pro Gln				
2264	2269	2274	2279	
atg ttt ggt gtt ggg gga ctc ctc agt cca ccc atg gca acc acc tgc				7035
Met Phe Gly Val Gly Gly Leu Leu Ser Pro Pro Met Ala Thr Thr Cys				
2280	2285	2290	2295	
act tcc act gcc ccg gcg tct cta tca agc aca acg aaa agt ggt acg				7083
Thr Ser Thr Ala Pro Ala Ser Leu Ser Ser Thr Thr Lys Ser Gly Thr				
2296	2301	2306	2311	
gca gtg act gaa aag act gcg gaa gac aag ccg agt agc cat gat gtg				7131
Ala Val Thr Glu Lys Thr Ala Glu Asp Lys Pro Ser Ser His Asp Val				
2312	2317	2322	2327	
aaa aca gac act tta gct gag gac aag cct ggt cca ggt cca ttt tct				7179
Lys Thr Asp Thr Leu Ala Glu Asp Lys Pro Gly Pro Gly Pro Phe Ser				
2328	2333	2338	2343	

gat cag tct gaa cct gca ata act act agt agt cct gtg gct ttt aac	7227
Asp Gln Ser Glu Pro Ala Ile Thr Thr Ser Ser Pro Val Ala Phe Asn	
2344 2349 2354 2359	
cca ttt ctc atc cca gga gta tct cct gga ctc att tac cca tcc atg	7275
Pro Phe Leu Ile Pro Gly Val Ser Pro Gly Leu Ile Tyr Pro Ser Met	
2360 2365 2370 2375	
ttc ctc tcc cct ggt atg ggc atg gct ctg cca gcc atg cag cag gcc	7323
Phe Leu Ser Pro Gly Met Gly Met Ala Leu Pro Ala Met Gln Gln Ala	
2376 2381 2386 2391	
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Arg His Ser Glu Ile Val Gly Leu Glu Ser Gln Lys Arg Lys Lys Lys	
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Lys Thr Lys Gly Asp Asn Pro Asn Ser His Pro Glu Pro Ala Pro Ser	
2408 2413 2418 2423	
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Cys Glu Arg Glu Pro Ser Gly Asp Glu Asn Cys Ala Glu Pro Ser Ala	
2424 2429 2434 2439	
cct ttg ccc gca gag aga gaa cat ggg gca cag gct ggg gag ggg gca	7515
Pro Leu Pro Ala Glu Arg Glu His Gly Ala Gln Ala Gly Glu Gly Ala	
2440 2445 2450 2455	
ctc aaa gac tcc aac aac gac acc aat tag a acttttttca ttttaagaaat	7566
Leu Lys Asp Ser Asn Asn Asp Thr Asn *	
2456 2461	
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9 14 19 24

aac gcc aag cag tcc cgg gac tgc ttc gga tgc ctt cga gag tgg tgc 437  
Asn Ala Lys Gln Ser Arg Asp Cys Phe Gly Cys Leu Arg Glu Trp Cys  
41 46 51 56

gtttgcagcc gagtagggac tctccccctg tctctacga aggaaaagat tgctattgtc 552

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tggcctccgg aggacc      atg tca tta gac ttt ggc agt gtg gca cta cca 229
                        Met Ser Leu Asp Phe Gly Ser Val Ala Leu Pro
                        1          5
gtg caa aat gaa gat gaa gag tat gac gaa gag gac tat gaa aga gag 277
Val Gln Asn Glu Asp Glu Glu Tyr Asp Glu Glu Asp Tyr Glu Arg Glu
12          17          22          27
aaa gag ttg cag cag tta ctc aca gac ctt ccc cat gac atg ctg gat 325
Lys Glu Leu Gln Gln Leu Leu Thr Asp Leu Pro His Asp Met Leu Asp
28          33          38          43
gac gac ctc tcc tct cca gag ctc cag tat tct gac tgc agc gag gat 373
Asp Asp Leu Ser Ser Pro Glu Leu Gln Tyr Ser Asp Cys Ser Glu Asp
44          49          54          59
ggc aca gac gga caa cca cat cat cct gag caa ttg gag atg agc tgg 421
Gly Thr Asp Gly Gln Pro His His Pro Glu Gln Leu Glu Met Ser Trp
60          65          70          75
aat gag caa atg ctg ccc aaa tct caa agt gta aat ggt ccc agt tgt 469
Asn Glu Gln Met Leu Pro Lys Ser Gln Ser Val Asn Gly Pro Ser Cys
76          81          86          91
caa ggt ttg gaa ccg tat aat aaa gtg aca tat aaa cct tat cag tct 517
Gln Gly Leu Glu Pro Tyr Asn Lys Val Thr Tyr Lys Pro Tyr Gln Ser
92          97          102          107
tct gcc cag aat aat ggc tca cca gcc cag gag ata aca gga agt gac 565
Ser Ala Gln Asn Asn Gly Ser Pro Ala Gln Glu Ile Thr Gly Ser Asp

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Thr Phe Glu Gly Leu	Gln Gln Gln Phe Leu	Gly Ala Asn Glu Asn Ser		
124	129	134	139	
gca gaa aat atg cag	att att caa ctt cag	gtt ctt aac aaa gca aaa		661
Ala Glu Asn Met Gln	Ile Ile Gln Leu Gln	Val Leu Asn Lys Ala Lys		
140	145	150	155	
gag aga caa ctg gag	aac tta att gaa aag	tta aat gaa agt gaa cgt		709
Glu Arg Gln Leu Glu	Asn Leu Ile Glu Lys	Leu Asn Glu Ser Glu Arg		
156	161	166	171	
caa att cga tat ctg	aat cac cag ctt gta	ata ata aaa gat gaa aag		757
Gln Ile Arg Tyr Leu	Asn His Gln Leu Val	Ile Ile Lys Asp Glu Lys		
172	177	182	187	
gat ggt ttg act ctc	agc ctt cga gaa tca	cag aaa ctc ttt cag aat		805
Asp Gly Leu Thr Leu	Ser Leu Arg Glu Ser	Gln Lys Leu Phe Gln Asn		
188	193	198	203	
gga aaa gaa aga gag	ata cag ctt gaa gct	caa ata aaa gca ctg gag		853
Gly Lys Glu Arg Glu	Ile Gln Leu Glu Ala	Gln Ile Lys Ala Leu Glu		
204	209	214	219	
act cag ata caa gca	tta aaa gtc aat gaa	gaa cag atg atc aag aag		901
Thr Gln Ile Gln Ala	Leu Lys Val Asn Glu	Glu Gln Met Ile Lys Lys		
220	225	230	235	
tcc aga aca act gaa	atg gct ctg gaa agc	ttg aag cag cag ctg gtg		949
Ser Arg Thr Thr Glu	Met Ala Leu Glu Ser	Leu Lys Gln Gln Leu Val		
236	241	246	251	
gac ctt cat cat tct	gaa tca ctt caa cga	gct aga gaa cag cat gag		997
Asp Leu His His Ser	Glu Ser Leu Gln Arg	Ala Arg Glu Gln His Glu		
252	257	262	267	
agc att gtt atg ggc	ctc aca aag aag tac	gaa gag caa gta ttg tcc		1045
Ser Ile Val Met Gly	Leu Thr Lys Lys Tyr	Glu Glu Gln Val Leu Ser		
268	273	278	283	
tta caa aag aat ttg	gat gcc aca gtc acc	gca ctt aaa gaa cag gaa		1093
Leu Gln Lys Asn Leu	Asp Ala Thr Val Thr	Ala Leu Lys Glu Gln Glu		
284	289	294	299	
gac att tgc tct cgt	ctg aaa gat cac gtg	aaa caa ctg gaa agg aat		1141
Asp Ile Cys Ser Arg	Leu Lys Asp His Val	Lys Gln Leu Glu Arg Asn		
300	305	310	315	
caa gaa gca atc aag	tta gaa aag act gag	atc att aat aag ttg aca		1189
Gln Glu Ala Ile Lys	Leu Glu Lys Thr Glu	Ile Ile Asn Lys Leu Thr		
316	321	326	331	
aga agt cta gag gag	agt caa aag cag tgt	gcc cac ttg ttg cag tcc		1237
Arg Ser Leu Glu Glu	Ser Gln Lys Gln Cys	Ala His Leu Leu Gln Ser		
332	337	342	347	

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Gly Ser Val Gln Glu Val Ala Gln Leu Gln Phe Gln Leu Gln Gln Ala	
348 353 358 363	
cag aag gca cat gct atg agt gca aac atg aac aag gct ttg caa gaa	1333
Gln Lys Ala His Ala Met Ser Ala Asn Met Asn Lys Ala Leu Gln Glu	
364 369 374 379	
gaa tta aca gaa cta aaa gat gaa att tct ctc tat gaa tct gct gca	1381
Glu Leu Thr Glu Leu Lys Asp Glu Ile Ser Leu Tyr Glu Ser Ala Ala	
380 385 390 395	
aaa cta gga ata cat cca agt gac tca gaa gga gaa tta aat ata gaa	1429
Lys Leu Gly Ile His Pro Ser Asp Ser Glu Gly Glu Leu Asn Ile Glu	
396 401 406 411	
ctc act gaa tcg tat gtg gat ttg ggt att aaa aag gtc aac tgg aaa	1477
Leu Thr Glu Ser Tyr Val Asp Leu Gly Ile Lys Lys Val Asn Trp Lys	
412 417 422 427	
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Lys Ser Lys Val Thr Ser Ile Val Gln Glu Glu Asp Pro Asn Glu Glu	
428 433 438 443	
ctt tca aaa gat gag ttc att ctg aag tta aag gca gaa gta cag cgt	1573
Leu Ser Lys Asp Glu Phe Ile Leu Lys Leu Lys Ala Glu Val Gln Arg	
444 449 454 459	
ttg ctg ggt agc aac tca atg aag cgt cat ctg gtg tct cag tta caa	1621
Leu Leu Gly Ser Asn Ser Met Lys Arg His Leu Val Ser Gln Leu Gln	
460 465 470 475	
aat gac ctc aaa gac tgt cat aag aaa att gaa gat ctc cac caa gtg	1669
Asn Asp Leu Lys Asp Cys His Lys Lys Ile Glu Asp Leu His Gln Val	
476 481 486 491	
aag aag gat gaa aaa agc att gag gtt gag act aaa aca gat acc tca	1717
Lys Lys Asp Glu Lys Ser Ile Glu Val Glu Thr Lys Thr Asp Thr Ser	
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Glu Lys Pro Lys Asn Gln Leu Trp Pro Glu Ser Ser Thr Ser Asp Val	
508 513 518 523	
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Val Arg Asp Asp Ile Leu Leu Leu Lys Asn Glu Ile Gln Val Leu Gln	
524 529 534 539	
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Gln Gln Asn Gln Glu Leu Lys Glu Thr Glu Gly Lys Leu Arg Asn Thr	
540 545 550 555	
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Asn Gln Asp Leu Cys Asn Gln Met Arg Gln Met Val Gln Asp Phe Asp	
556 561 566 571	

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His Asp Lys Gln Glu Ala Val Asp Arg Cys Glu Arg Thr Tyr Gln Gln	
572 577 582 587	
 cac cat gaa gcc atg aaa act caa ata cgt gaa agc cta tta gca aag	2005
His His Glu Ala Met Lys Thr Gln Ile Arg Glu Ser Leu Leu Ala Lys	
588 593 598 603	
 cat gct ttg gag aag cag cag ctc ttt gag gct tat gag aga act cat	2053
His Ala Leu Glu Lys Gln Gln Leu Phe Glu Ala Tyr Glu Arg Thr His	
604 609 614 619	
 ttg caa ctg agg tct gag ttg gat aag ttg aat aag gag gtg act gct	2101
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Leu Thr Leu Arg Lys Thr Thr Glu Lys Glu Gln Gln Thr Gln Glu Lys	
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Ile Lys Glu Lys Leu Ile Gln Gln Leu Glu Lys Glu Trp Gln Ser Lys	
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684 689 694 699	
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Ser Gln Thr Asp Gln Val Thr Thr Ser Asp Val Ile Ser Lys Lys Glu	
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Met Ala Ile Met Ile Glu Glu Gln Lys Cys Thr Ile Gln Gln Asn Leu	
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Glu Gln Glu Lys Asp Ile Ala Ile Lys Gly Ala Met Lys Lys Leu Glu	
732 737 742 747	
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Ile Ala Val Gln Asn Ala His Gln Arg Trp Leu Gly Glu Leu Pro Glu	
764 769 774 779	
 ctg gca gag tat caa gca ctt gtg aag gca gaa cag aaa aag tgg gaa	2581
Leu Ala Glu Tyr Gln Ala Leu Val Lys Ala Glu Gln Lys Lys Trp Glu	
780 785 790 795	
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Glu	Gln	His	Glu	Val	Ser	Val	Asn	Lys	Arg	Ile	Ser	Phe	Ala	Val	Ser		
796					801					806					811		
gaa	gct	aaa	gag	aaa	tgg	aag	agt	gag	ctt	gaa	aat	atg	agg	aaa	aat	2677	
Glu	Ala	Lys	Glu	Lys	Trp	Lys	Ser	Glu	Leu	Glu	Asn	Met	Arg	Lys	Asn		
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ata	ctt	cct	gga	aag	gaa	ttg	gaa	gag	aag	att	cat	tct	ctt	cag	aag	2725	
Ile	Leu	Pro	Gly	Lys	Glu	Leu	Glu	Glu	Lys	Ile	His	Ser	Leu	Gln	Lys		
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gaa	ctt	gag	tta	aag	aac	gaa	gaa	gtc	cct	gtg	gtc	atc	agg	gct	gag	2773	
Glu	Leu	Glu	Leu	Lys	Asn	Glu	Glu	Val	Pro	Val	Val	Ile	Arg	Ala	Glu		
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cac	aga	atc	caa	gaa	caa	aat	gag	caa	gat	tac	cgg	caa	ttt	tta	gat	2869	
His	Arg	Ile	Gln	Glu	Gln	Asn	Glu	Gln	Asp	Tyr	Arg	Gln	Phe	Leu	Asp		
876					881					886					891		
gat	cac	cga	aat	aaa	att	aat	gag	gtg	ctt	gcg	gca	gct	aaa	gaa	gac	2917	
Asp	His	Arg	Asn	Lys	Ile	Asn	Glu	Val	Leu	Ala	Ala	Ala	Lys	Glu	Asp		
892					897					902					907		
ttt	atg	aaa	caa	aaa	act	gaa	cta	ctt	ctt	cag	aag	gag	aca	gaa	tta	2965	
Phe	Met	Lys	Gln	Lys	Thr	Glu	Leu	Leu	Leu	Gln	Lys	Glu	Thr	Glu	Leu		
908					913					918					923		
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Gln	Thr	Cys	Leu	Asp	Gln	Ser	Arg	Arg	Glu	Trp	Thr	Met	Gln	Glu	Ala		
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Lys	Arg	Ile	Gln	Leu	Glu	Ile	Tyr	Gln	Tyr	Glu	Glu	Asp	Ile	Leu	Thr		
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Trp	Met	Ser	Val	Gln	Tyr	Phe	Glu	Lys	Leu	Lys	Gly	Cys	Ile	Gln	Lys		
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Ala	Phe	Gln	Asp	Thr	Leu	Pro	Leu	Leu	Val	Glu	Asn	Ala	Asp	Pro	Glu		
1004					1009					1014					1019		
tgg	aaa	aag	aga	aat	atg	gcc	gag	ctc	tct	aag	gat	tct	gcc	agc	cag	3301	
Trp	Lys	Lys	Arg	Asn	Met	Ala	Glu	Leu	Ser	Lys	Asp	Ser	Ala	Ser	Gln		

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Gly Thr Gly Gln Gly Asp Pro Gly Pro Ala Ala Gly His His Ala Gln				
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ccc ttg gcc tta caa gca aca gaa gca gaa gct gat aag aaa aag gtc				3397
Pro Leu Ala Leu Gln Ala Thr Glu Ala Glu Ala Asp Lys Lys Lys Val				
1052	1057	1062	1067	
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Leu Glu Ile Lys Asp Leu Cys Cys Gly His Cys Phe Gln Glu Leu Glu				
1068	1073	1078	1083	
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Lys Ala Lys Gln Glu Cys Gln Asp Leu Lys Gly Lys Leu Glu Lys Cys				
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Cys Arg His Leu Gln His Leu Glu Arg Lys His Lys Ala Val Val Glu				
1100	1105	1110	1115	
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Lys Ile Gly Glu Glu Asn Asn Lys Val Val Glu Glu Leu Ile Glu Glu				
1116	1121	1126	1131	
aac aac gac atg aag aat aaa ttg gaa gaa ttg caa aca ctt tgt aaa				3637
Asn Asn Asp Met Lys Asn Lys Leu Glu Glu Leu Gln Thr Leu Cys Lys				
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Thr Pro Pro Arg Ser Leu Ser Ala Gly Ala Ile Glu Asn Ala Cys Leu				
1148	1153	1158	1163	
cca tgc agt ggg gga gcc ttg gaa gaa ctt cgt ggg cag tac att aaa				3733
Pro Cys Ser Gly Gly Ala Leu Glu Glu Leu Arg Gly Gln Tyr Ile Lys				
1164	1169	1174	1179	
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Ala Val Lys Lys Ile Lys Cys Asp Met Leu Arg Tyr Ile Gln Glu Ser				
1180	1185	1190	1195	
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Lys Glu Arg Ala Ala Glu Met Val Lys Ala Glu Val Leu Arg Glu Arg				
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Gln Glu Thr Ala Arg Lys Met Arg Lys Tyr Tyr Leu Ile Cys Leu Gln				
1212	1217	1222	1227	
cag att ttg cag gat gat gga aaa gaa ggg gct gag aaa aag att atg				3925
Gln Ile Leu Gln Asp Asp Gly Lys Glu Gly Ala Glu Lys Lys Ile Met				
1228	1233	1238	1243	
aat gct gct agc aaa ctt gct aca atg gca aaa tta ctg gaa aca cct				3973
Asn Ala Ala Ser Lys Leu Ala Thr Met Ala Lys Leu Leu Glu Thr Pro				
1244	1249	1254	1259	

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 Ile Ser Ser Lys Ser Gln Ser Lys Thr Thr Gln Ser Gly Met Ser Lys  
 1260 1265 1270 1275

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 \*  
 1276

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 Met  
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 2 7 12 17

atg tac ttc acc aga gag gag tgg ggc cac ctc aac tgg ggt cag aag 332  
 Met Tyr Phe Thr Arg Glu Glu Trp Gly His Leu Asn Trp Gly Gln Lys  
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gac ctc tac cga gat gtg atg ttg gag aac tac agg aac atg gtc ttg 380  
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 34 39 44 49

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 Leu Gly Phe Gln Phe Pro Lys Pro Glu Met Ile Cys Gln Leu Glu Asn  
 50 55 60 65

tgg gac gag cag tgg atc ctg gat cta ccg aga gct ggg aat agg aag 476  
 Trp Asp Glu Gln Trp Ile Leu Asp Leu Pro Arg Ala Gly Asn Arg Lys  
 66 71 76 81

gct tcc ggt agt gct tgc cca ggc gga ctc tcg ctc tgt cgc cag gct 524  
 Ala Ser Gly Ser Ala Cys Pro Gly Gly Leu Ser Leu Cys Arg Gln Ala  
 82 87 92 97

gtc tta gcc tcc tga gtggccttgga ctacagggcgc gcgccaccat gcccggtac 579  
 Val Leu Ala Ser \*  
 98

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Met Arg Arg Gly Glu Arg Arg Asp Ala Gly Gly Pro Arg Pro Glu Ser  
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Pro Val Pro Ala Gly Arg Ala Ser Leu Glu Glu Pro Pro Asp Gly Pro  
 17 22 27 32

tct gcc ggc caa gcc acc ggg ccg ggc gag ggc cgc cgc agc acc gag 441

Ser Ala Gly Gln Ala Thr Gly Pro Gly Glu Gly Arg Arg Ser Thr Glu

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Ser Glu Val Tyr Asp Asp Gly Thr Asn Thr Phe Phe Trp Arg Ala His				
49	54	59	64	
acc tta acc gtg ctc ttc atc ctc acc tgt acg ctt ggc tat gtg acg				537
Thr Leu Thr Val Leu Phe Ile Leu Thr Cys Thr Leu Gly Tyr Val Thr				
65	70	75	80	
ctg ctg gag gaa aca cct cag gac acg gcc tac aac acc aag aga ggt				585
Leu Leu Glu Glu Thr Pro Gln Asp Thr Ala Tyr Asn Thr Lys Arg Gly				
81	86	91	96	
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Ile Val Ala Ser Ile Leu Val Phe Leu Cys Phe Gly Val Thr Gln Ala				
97	102	107	112	
aaa gac ggg cca ttt tcc aga cct cat cca gct tac tgg agg ttt tgg				681
Lys Asp Gly Pro Phe Ser Arg Pro His Pro Ala Tyr Trp Arg Phe Trp				
113	118	123	128	
ctc tgc gtg agt gtg gtc tac gag ctg ttt ctc atc ttt ata ctc ttc				729
Leu Cys Val Ser Val Val Tyr Glu Leu Phe Leu Ile Phe Ile Leu Phe				
129	134	139	144	
cag act gtc cag gac ggc cgg cag ttt cta aag tat gtt gac ccc aag				777
Gln Thr Val Gln Asp Gly Arg Gln Phe Leu Lys Tyr Val Asp Pro Lys				
145	150	155	160	
ctg gga gtc cca ctg cca gag aga gac tac ggg gga aac tgc ctc atc				825
Leu Gly Val Pro Leu Pro Glu Arg Asp Tyr Gly Gly Asn Cys Leu Ile				
161	166	171	176	
tac gac cca gac aat gag act gac ccc ttt cac aac atc tgg gac aag				873
Tyr Asp Pro Asp Asn Glu Thr Asp Pro Phe His Asn Ile Trp Asp Lys				
177	182	187	192	
ttg gat ggc ttt gtt ccc gcg cac ttt ctt ggc tgg tac ctg aag acc				921
Leu Asp Gly Phe Val Pro Ala His Phe Leu Gly Trp Tyr Leu Lys Thr				
193	198	203	208	
ctg atg atc cga gac tgg tgg atg tgc atg atc atc agc gtg atg ttc				969
Leu Met Ile Arg Asp Trp Trp Met Cys Met Ile Ile Ser Val Met Phe				
209	214	219	224	
gag ttc ctg gag tac agc ctg gag cac cag ctg ccc aac ttc agc gag				1017
Glu Phe Leu Glu Tyr Ser Leu Glu His Gln Leu Pro Asn Phe Ser Glu				
225	230	235	240	
tgc tgg tgg gat cac tgg atc atg gac gtg ctc gtc tgc aac ggg ctg				1065
Cys Trp Trp Asp His Trp Ile Met Asp Val Leu Val Cys Asn Gly Leu				
241	246	251	256	
ggc atc tac tgc ggc atg aag acc ctt gag tgg ctg tcc ctg aag acg				1113
Gly Ile Tyr Cys Gly Met Lys Thr Leu Glu Trp Leu Ser Leu Lys Thr				
257	262	267	272	

tac aag tgg cag ggc ctc tgg aac att ccg acc tac aag ggc aag atg	1161
Tyr Lys Trp Gln Gly Leu Trp Asn Ile Pro Thr Tyr Lys Gly Lys Met	
273 278 283 288	
aag agg atc gcc ttc cag ttc acg ccg tac agc tgg gtt cgc ttc gag	1209
Lys Arg Ile Ala Phe Gln Phe Thr Pro Tyr Ser Trp Val Arg Phe Glu	
289 294 299 304	
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Trp Lys Pro Ala Ser Ser Leu Arg Arg Trp Leu Ala Val Cys Gly Ile	
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Ile Leu Val Phe Leu Leu Ala Glu Leu Asn Thr Phe Tyr Leu Lys Phe	
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Val Leu Trp Met Pro Pro Glu His Tyr Leu Val Leu Leu Arg Leu Val	
337 342 347 352	
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Phe Phe Val Asn Val Gly Gly Val Ala Met Arg Glu Ile Tyr Asp Phe	
353 358 363 368	
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Met Asp Asp Pro Lys Pro His Lys Lys Leu Gly Pro Gln Ala Trp Leu	
369 374 379 384	
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Val Ala Ala Ile Thr Ala Thr Glu Leu Leu Ile Val Val Lys Tyr Asp	
385 390 395 400	
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Pro His Thr Leu Thr Leu Ser Leu Pro Phe Tyr Ile Ser Gln Cys Trp	
401 406 411 416	
acc ctc ggc tcc gtc ctg gcg ctc acc tgg acc gtc tgg cgc ttc ttc	1593
Thr Leu Gly Ser Val Leu Ala Leu Thr Trp Thr Val Trp Arg Phe Phe	
417 422 427 432	
ctg cgg gac atc aca ttg agg tac aag gag acc cgg tgg cag aag tgg	1641
Leu Arg Asp Ile Thr Leu Arg Tyr Lys Glu Thr Arg Trp Gln Lys Trp	
433 438 443 448	
cag aac aag gat gac cag ggc agc acc gtc ggc aac ggg gac cag cac	1689
Gln Asn Lys Asp Asp Gln Gly Ser Thr Val Gly Asn Gly Asp Gln His	
449 454 459 464	
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Pro Leu Gly Leu Asp Glu Asp Leu Leu Gly Pro Gly Val Ala Glu Gly	
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Glu Gly Ala Pro Thr Pro Asn *	
481 486	



99	104	109	114	
ccc tca gag cag tct Pro Ser Glu Gln Ser 115	cat gca agt ggc aaa His Ala Ser Gly Lys 120	ctc cgg aag aag aaa Leu Arg Lys Lys Lys 125	aaa aaa Lys Lys 130	440
aaa cag aaa aac aag Lys Gln Lys Asn Lys 131	aaa agc agc acg gga Lys Ser Ser Thr Gly 136	gaa gca tcg gaa aac gga Glu Ala Ser Glu Asn Gly 141	146	488
cta gaa gat atc gat Leu Glu Asp Ile Asp 147	cgc atc cta gag agg Arg Ile Leu Glu Arg 152	att gag gac agc act ggg Ile Glu Asp Ser Thr Gly 157	162	536
ttg aac cgt ccc ggc Leu Asn Arg Pro Gly 163	cca gct ccc ctg agc Pro Ala Pro Leu Ser 168	tcc agg aag cac gtt ctc Ser Arg Lys His Val Leu 173	178	584
tac gtg gag cac aga Tyr Val Glu His Arg 179	cac ttg aat cca gac His Leu Asn Pro Asp 184	aca gaa ctg aaa agg tat Thr Glu Leu Lys Arg Tyr 189	194	632
ttt ggt gcc cgg gca Phe Gly Ala Arg Ala 195	atc ctg ggg gag caa Ile Leu Gly Glu Gln 200	agg cca cgg cag aga caa Arg Pro Arg Gln Arg Gln 205	210	680
cgt gtg tac ccc aag Arg Val Tyr Pro Lys 211	tgc aca tgg ctg acc Cys Thr Trp Leu Thr 216	acc cct aaa agc acc tgg Thr Pro Lys Ser Thr Trp 221	226	728
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aaa ggc ctc tcc ttc Lys Gly Leu Ser Phe 243	ttt gcg ttt gag cac Phe Ala Phe Glu His 248	agt gag gag tac cag cag Ser Glu Glu Tyr Gln Gln 253	258	824
gct cag cac aag ttc Ala Gln His Lys Phe 259	ctg gtg gcc gtg gag Leu Val Ala Val Glu 264	tct atg gag ccg aac aac Ser Met Glu Pro Asn Asn 269	274	872
atc gtg gtt ctg ctc Ile Val Val Leu Leu 275	cag acg agc cct tac Gln Thr Ser Pro Tyr 280	cac gtt gac tca ctc ctg His Val Asp Ser Leu Leu 285	290	920
cag ctc agc gat gcc Gln Leu Ser Asp Ala 291	tgc cgc ttt caa gag Cys Arg Phe Gln Glu 296	gat cag gag atg gct cga Asp Gln Glu Met Ala Arg 301	306	968
gac ctc gta gag aga Asp Leu Val Glu Arg 307	gcg ctg tac agc atg Ala Leu Tyr Ser Met 312	gaa tgt gcg ttc cac ccc Glu Cys Ala Phe His Pro 317	322	1016
ctg ttc agt ctc acc Leu Phe Ser Leu Thr 323	agt ggg gcc tgc cgg Ser Gly Ala Cys Arg 328	ctg gat tac cgc aga ccc Leu Asp Tyr Arg Arg Pro 333	338	1064

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Glu Asn Arg Ser Phe Tyr Leu Ala Leu Tyr Lys Gln Met Ser Phe Leu	
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Glu Lys Arg Gly Cys Pro Arg Thr Ala Leu Glu Tyr Cys Lys Leu Ile	
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Leu Ser Leu Glu Pro Asp Glu Asp Pro Leu Cys Met Leu Leu Leu Ile	
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gac cac ctg gcc ttg cgg gcc cgg aac tac gag tac ctg atc cgc ctc	1256
Asp His Leu Ala Leu Arg Ala Arg Asn Tyr Glu Tyr Leu Ile Arg Leu	
387 392 397 402	
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Phe Gln Glu Trp Glu Val Gly Ala Ser Leu Ala His Arg Asn Leu Ser	
403 408 413 418	
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Gln Leu Pro Asn Phe Ala Phe Ser Val Pro Leu Ala Tyr Phe Leu Leu	
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agc cag cag aca gac ctc cct gag tgt gag cag agc tct gcc agg cag	1400
Ser Gln Gln Thr Asp Leu Pro Glu Cys Glu Gln Ser Ser Ala Arg Gln	
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Lys Ala Ser Leu Leu Ile Gln Gln Ala Leu Thr Met Phe Pro Gly Val	
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Leu Leu Pro Leu Leu Glu Ser Cys Ser Val Arg Pro Asp Ala Ser Val	
467 472 477 482	
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Ser Ser His Arg Phe Phe Gly Pro Asn Ala Glu Ile Ser Gln Pro Pro	
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Ala Leu Ser Gln Leu Val Asn Leu Tyr Leu Gly Arg Ser His Phe Leu	
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Trp Lys Glu Pro Ala Thr Met Ser Trp Leu Glu Glu Asn Val His Glu	
515 520 525 530	
gtt ctg caa gca gtg gac gcc ggg gac cca gcc gtg gaa gcc tgt gag	1688
Val Leu Gln Ala Val Asp Ala Gly Asp Pro Ala Val Glu Ala Cys Glu	
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Asn Arg Arg Lys Val Leu Tyr Gln Arg Ala Pro Arg Asn Ile His Arg	
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His Val Ile Leu Ser Glu Ile Lys Glu Ala Val Ala Ala Leu Pro Pro	
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Asp Val Thr Thr Gln Ser Val Met Gly Phe Asp Pro Leu Pro Pro Ser	
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gac aca atc tac tcc tac gtc agg cca gag agg cta agt cct atc agc	1880
Asp Thr Ile Tyr Ser Tyr Val Arg Pro Glu Arg Leu Ser Pro Ile Ser	
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His Gly Asn Thr Ile Ala Leu Phe Phe Arg Ser Leu Leu Pro Asn Tyr	
611 616 621 626	

acc atg gag ggg gag agg ccc gag gaa gga gtg gct ggg ggt ctg aac	1976
Thr Met Glu Gly Glu Arg Pro Glu Glu Gly Val Ala Gly Gly Leu Asn	
627 632 637 642	

cgc aac cag ggc ctg aac agg ctg atg ctg gct gtg cgc gac atg atg	2024
Arg Asn Gln Gly Leu Asn Arg Leu Met Leu Ala Val Arg Asp Met Met	
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gcc aac ttc cac ctc aac gac ctg gag gcg ccg cac gag gac gac gct	2072
Ala Asn Phe His Leu Asn Asp Leu Glu Ala Pro His Glu Asp Asp Ala	
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Arg Arg Ala Leu Arg Arg Leu Arg Gly Glu Gln Arg Gly Gln Glu Pro	

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ctc ggg ccc ggc gcc ttg cat ttc gat ctc cgt gat gac gat gac gcg				152
Leu Gly Pro Gly Ala Leu His Phe Asp Leu Arg Asp Asp Asp Ala				
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Glu Glu Glu Gly Pro Lys Arg Glu Leu Gly Val Arg Arg Pro Gly Gly				
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gca ggg aag gag ggc gtc cga gtc aac aac cgc ttc gag ctg ata aac				248
Ala Gly Lys Glu Gly Val Arg Val Asn Asn Arg Phe Glu Leu Ile Asn				
51	56	61	66	
att gac gat ctt gag gat gac cct gtg gtg aac ggg gag agg tct ggc				296
Ile Asp Asp Leu Glu Asp Asp Pro Val Val Asn Gly Glu Arg Ser Gly				
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tgt gcg ctc aca gac gct gtg gca cca ggg aac aaa gga agg ggt cag				344
Cys Ala Leu Thr Asp Ala Val Ala Pro Gly Asn Lys Gly Arg Gly Gln				
83	88	93	98	
cgt gga aac aca gag agc aag acg gat gga gat gac acc gag aca gtg				392
Arg Gly Asn Thr Glu Ser Lys Thr Asp Gly Asp Asp Thr Glu Thr Val				
99	104	109	114	
ccc tca gag cag tct cat gca agt ggc aaa ctc cgg aag aag aaa aaa				440
Pro Ser Glu Gln Ser His Ala Ser Gly Lys Leu Arg Lys Lys Lys Lys				
115	120	125	130	
aaa cag aaa aac aag aaa agc agc acg gga gaa gca tcg gaa aac gga				488
Lys Gln Lys Asn Lys Lys Ser Ser Thr Gly Glu Ala Ser Glu Asn Gly				
131	136	141	146	
cta gaa gat atc gat cgc atc cta gag agg att gag gac agc act ggg				536
Leu Glu Asp Ile Asp Arg Ile Leu Glu Arg Ile Glu Asp Ser Thr Gly				
147	152	157	162	
ttg aac cgt ccc ggc cca gct ccc ctg agc tcc agg aag cac gtt ctc				584
Leu Asn Arg Pro Gly Pro Ala Pro Leu Ser Ser Arg Lys His Val Leu				
163	168	173	178	
tac gtg gag cac aga cac ttg aat cca gac aca gaa ctg aaa agg tat				632
Tyr Val Glu His Arg His Leu Asn Pro Asp Thr Glu Leu Lys Arg Tyr				
179	184	189	194	
ttt ggt gcc cgg gca atc ctg ggg gag caa agg cca cgg cag aga caa				680
Phe Gly Ala Arg Ala Ile Leu Gly Glu Gln Arg Pro Arg Gln Arg Gln				
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cgt gtg tac ccc aag tgc aca tgg ctg acc acc cct aaa agc acc tgg				728
Arg Val Tyr Pro Lys Cys Thr Trp Leu Thr Thr Pro Lys Ser Thr Trp				
211	216	221	226	
ccc cgc tac agc aaa cca ggt ctg tcc atg cgg ctg ctg gaa tca aaa				776
Pro Arg Tyr Ser Lys Pro Gly Leu Ser Met Arg Leu Leu Glu Ser Lys				
227	232	237	242	

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Lys Gly Leu Ser Phe Phe Ala Phe Glu His Ser Glu Glu Tyr Gln Gln	
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Ala Gln His Lys Phe Leu Val Ala Val Glu Ser Met Glu Pro Asn Asn	
259 264 269 274	
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Ile Val Leu Ser Asp Ala Cys Arg Phe Gln Glu Asp Gln Glu Met Ala	
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Pro Leu Phe Ser Leu Thr Ser Gly Ala Cys Arg Leu Asp Tyr Arg Arg	
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Pro Glu Asn Arg Ser Phe Tyr Leu Ala Leu Tyr Lys Gln Met Ser Phe	
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Ile Leu Ser Leu Glu Pro Asp Glu Asp Pro Leu Cys Met Leu Leu Leu	
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Ile Asp His Leu Ala Leu Arg Ala Arg Asn Tyr Glu Tyr Leu Ile Arg	
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Leu Phe Gln Glu Trp Glu Val Gly Ala Ser Leu Ala His Arg Asn Leu	
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Leu Ser Gln Gln Thr Asp Leu Pro Glu Cys Glu Gln Ser Ser Ala Arg	
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Gln Lys Ala Ser Leu Leu Ile Gln Gln Ala Leu Thr Met Phe Pro Gly	
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Val Leu Leu Pro Leu Leu Glu Ser Cys Ser Val Arg Pro Asp Ala Ser	
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Val Ser Ser His Arg Phe Phe Gly Pro Asn Ala Glu Ile Ser Gln Pro	
467 472 477 482	
cct gcc ctg agc cag ctg gtg aac ctg tac ctt ggg agg tca cac ttt	1544
Pro Ala Leu Ser Gln Leu Val Asn Leu Tyr Leu Gly Arg Ser His Phe	
483 488 493 498	
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Leu Trp Lys Glu Pro Ala Thr Met Ser Trp Leu Glu Glu Asn Val His	
499 504 509 514	
gag gtt ctg caa gca gtg gac gcc ggg gac cca gcc gtg gaa gcc tgt	1640
Glu Val Leu Gln Ala Val Asp Ala Gly Asp Pro Ala Val Glu Ala Cys	
515 520 525 530	
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Glu Asn Arg Arg Lys Val Leu Tyr Gln Arg Ala Pro Arg Asn Ile His	
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cgc cat gtg atc ctc tct gag atc aag gaa gcc gtc gct gcc ctg ccc	1736
Arg His Val Ile Leu Ser Glu Ile Lys Glu Ala Val Ala Ala Leu Pro	
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tat acc atg gag ggg gag agg ccc gag gaa gga gtg gct ggg ggt ctg	1928
Tyr Thr Met Glu Gly Glu Arg Pro Glu Glu Gly Val Ala Gly Gly Leu	
611 616 621 626	
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Asn Arg Asn Gln Gly Leu Asn Arg Leu Met Leu Ala Val Arg Asp Met	
627 632 637 642	
atg gcc aac ttc cac ctc aac gac ctg gag gcg ccg cac gag gac gac	2024
Met Ala Asn Phe His Leu Asn Asp Leu Glu Ala Pro His Glu Asp Asp	
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gct gag ggg gag ggg gag tgg gac tga gcgtc cgcagaggtg accgaaaagc	2076
Ala Glu Gly Glu Gly Glu Trp Asp *	
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 Met Phe Tyr Tyr Pro  
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 Ala Thr Arg Gly Ser Arg Leu Val Lys Arg Glu Tyr Leu Arg Val Asn  
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 Gln Pro Pro Gln Pro Gly Leu Pro Arg Pro Arg Phe Ser Leu Tyr Leu  
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 Ser Ala Gln Leu Gln Ile Gly Val Ile Arg Val Tyr Ser Gln Gln Cys  
 70 75 80 85  
 cag tac ctc gtg gag gac atc cag cac atc ttg gag cgc ctc cac cgt 702  
 Gln Tyr Leu Val Glu Asp Ile Gln His Ile Leu Glu Arg Leu His Arg  
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 Ala Gln Leu Gln Ile Arg Ile Asp Met Glu Thr Glu Leu Pro Ser Leu  
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ctg ctt cct aac cac ctg gcc atg atg gag acc cta gaa gat gct cca	798
Leu Leu Pro Asn His Leu Ala Met Met Glu Thr Leu Glu Asp Ala Pro	
118 123 128 133	
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Asp Pro Phe Phe Gly Met Met Ser Val Asp Pro Arg Leu Pro Ser Pro	
134 139 144 149	
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Phe Asp Ile Pro Gln Ile Arg His Leu Leu Glu Ala Ala Ile Pro Glu	
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aga gtt gaa gag atc cct cct gaa gtt cct aca gag ccc agg gag cca	942
Arg Val Glu Glu Ile Pro Pro Glu Val Pro Thr Glu Pro Arg Glu Pro	
166 171 176 181	
gag agg att ccg gtc act gtg ctg cca cct gag gcc atc acg atc ctg	990
Glu Arg Ile Pro Val Thr Val Leu Pro Pro Glu Ala Ile Thr Ile Leu	
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gag gca gag ccc ata cgg atg ctg gag att gag ggt gaa cgg gag ctc	1038
Glu Ala Glu Pro Ile Arg Met Leu Glu Ile Glu Gly Glu Arg Glu Leu	
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Glu Ala Ile Leu Leu Glu Ile Pro Arg Leu Pro Pro Pro Ala Pro Ala	
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Glu Val Glu Gly Ile Gly Glu Ala Leu Gly Pro Glu Glu Leu Arg Leu	
246 251 256 261	
aca ggc tgg gaa cct ggg gcc cta ctc atg gag gtg acc ccc ccg gag	1230
Thr Gly Trp Glu Pro Gly Ala Leu Leu Met Glu Val Thr Pro Pro Glu	
262 267 272 277	
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Glu Leu Arg Leu Pro Ala Pro Pro Ser Pro Glu Arg Arg Pro Pro Val	
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Pro Pro Pro Pro Arg Arg Arg Arg Arg Arg Arg Leu Leu Phe Trp Asp	
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Glu Arg Trp Ala Trp Pro Glu Val Glu Ala Pro Glu Ala Pro Ala Leu	
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ccc gtg gtg cct gaa ctc cct gag gtg ccc atg gag atg cct ttg gtg	1806
Pro Val Val Pro Glu Leu Pro Glu Val Pro Met Glu Met Pro Leu Val	
454 459 464 469	
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Leu Pro Pro Glu Leu Glu Leu Leu Ser Leu Glu Ala Val His Arg Ala	
470 475 480 485	
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Val Ala Leu Glu Leu Gln Ala Asn Arg Glu Pro Asp Phe Ser Ser Leu	
486 491 496 501	
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Val Ser Pro Leu Ser Pro Arg Arg Met Ala Ala Arg Val Phe Tyr Leu	
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518 523 528 533	
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gcg act cgc ggc agc cgg ttg gtg aag cgc gaa tac ctg agg gtg aat 510  
Ala Thr Arg Gly Ser Arg Leu Val Lys Arg Glu Tyr Leu Arg Val Asn  
22 27 32 37  
gtg gtg aaa acc tgc gag gaa atc ctc aat tac gtg ctg gta cga gtg 558  
Val Val Lys Thr Cys Glu Glu Ile Leu Asn Tyr Val Leu Val Arg Val  
38 43 48 53  
caa ccc ccg cag ccc ggc ctg ccg cgg ccc cgc ttc tcc ctc tat ctc 606  
Gln Pro Pro Gln Pro Gly Leu Pro Arg Pro Arg Phe Ser Leu Tyr Leu  
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Ser Ala Gln Leu Gln Ile Gly Val Ile Arg Val Tyr Ser Gln Gln Cys	
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Gln Tyr Leu Val Glu Asp Ile Gln His Ile Leu Glu Arg Leu His Arg	
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Ala Gln Leu Gln Ile Arg Ile Asp Met Glu Thr Glu Leu Pro Ser Leu	
102 107 112 117	
ctg ctt cct aac cac ctg gcc atg atg gag acc cta gaa gat gct cca	798
Leu Leu Pro Asn His Leu Ala Met Met Glu Thr Leu Glu Asp Ala Pro	
118 123 128 133	
gat ccc ttt ttt ggg atg atg tct gtg gat ccc aga ctt cct agt cct	846
Asp Pro Phe Phe Gly Met Met Ser Val Asp Pro Arg Leu Pro Ser Pro	
134 139 144 149	
ttc gat atc cct cag att cga cac ctc tta gag gct gca atc cca gag	894
Phe Asp Ile Pro Gln Ile Arg His Leu Leu Glu Ala Ala Ile Pro Glu	
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Arg Val Glu Glu Ile Pro Pro Glu Val Pro Thr Glu Pro Arg Glu Pro	
166 171 176 181	
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Glu Arg Ile Pro Val Thr Val Leu Pro Pro Glu Ala Ile Thr Ile Leu	
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Glu Ala Glu Pro Ile Arg Met Leu Glu Ile Glu Gly Glu Arg Glu Leu	
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cca gag gtc agc cgc cga gaa ctg gac ctg ctg atc gca gag gaa gaa	1086
Pro Glu Val Ser Arg Arg Glu Leu Asp Leu Leu Ile Ala Glu Glu Glu	
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Glu Ala Ile Leu Leu Glu Ile Pro Arg Leu Pro Pro Pro Ala Pro Ala	
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Glu Val Glu Gly Ile Gly Glu Ala Leu Gly Pro Glu Glu Leu Arg Leu	
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Thr Gly Trp Glu Pro Gly Ala Leu Leu Met Glu Val Thr Pro Pro Glu	
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Glu Leu Arg Leu Pro Ala Pro Pro Ser Pro Glu Arg Arg Pro Pro Val	
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Pro Pro Pro Pro Arg Arg Arg Arg Arg Arg Arg Leu Leu Phe Trp Asp	
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Lys Glu Thr Gln Ile Ser Pro Glu Lys Phe Gln Glu Gln Leu Gln Thr	
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Arg Ala His Cys Trp Glu Cys Pro Met Val Gln Pro Pro Glu Arg Thr	
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Ile Arg Gly Pro Ala Glu Leu Phe Arg Thr Pro Thr Leu Ser Gly Trp	
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cta ccc cct gaa cta ctg ggt ctc tgg acc cat tgt gcc cag cca ccc	1518
Leu Pro Pro Glu Leu Leu Gly Leu Trp Thr His Cys Ala Gln Pro Pro	
358 363 368 373	
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Pro Lys Ala Leu Arg Arg Glu Leu Pro Glu Glu Ala Ala Ala Glu Glu	
374 379 384 389	
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Glu Arg Arg Lys Ile Glu Val Pro Ser Glu Ile Glu Val Pro Arg Glu	
390 395 400 405	
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Ala Leu Glu Pro Ser Val Pro Leu Met Val Ser Leu Glu Ile Ser Leu	
406 411 416 421	
gag gca gct gaa gag gag aag tcc cgc atc agc ctc atc cca cca gaa	1710
Glu Ala Ala Glu Glu Glu Lys Ser Arg Ile Ser Leu Ile Pro Pro Glu	
422 427 432 437	
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Glu Arg Trp Ala Trp Pro Glu Val Glu Ala Pro Glu Ala Pro Ala Leu	
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Pro Val Val Pro Glu Leu Pro Glu Val Pro Met Glu Met Pro Leu Val	
454 459 464 469	
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Leu Pro Pro Glu Leu Glu Leu Leu Ser Leu Glu Ala Val His Ser Pro	
470 475 480 485	
cgc agg atg gct gcc cgg gtc ttc tac ctg ctc ctg gtg ctc tca gcg	1902
Arg Arg Met Ala Ala Arg Val Phe Tyr Leu Leu Leu Val Leu Ser Ala	
486 491 496 501	
caa cag att ctt cac gtg aaa caa gaa aag cca tat ggt cgc ctc ctg	1950
Gln Gln Ile Leu His Val Lys Gln Glu Lys Pro Tyr Gly Arg Leu Leu	
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Ile Gln Pro Gly Pro Arg Phe His \*

518

523

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 ctgcttttat tacagtatga tgtcatgact catttgtaac agatccagcc tcagggacag 2182  
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<211> 3109

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<220>

<221> CDS

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<400> 257

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 ccccgcccca gagggcggag ggcgcgcgtc gattcccca accggggggc gccgctgtt 300  
 tacgtctgca gatctccagg ggagcccacc agcctagtca ac atg gcc tcg gaa 354  
 Met Ala Ser Glu  
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gac att gcc aag ctg gca gag aca ctt gcc aag act cag gtg gcc ggg 402  
 Asp Ile Ala Lys Leu Ala Glu Thr Leu Ala Lys Thr Gln Val Ala Gly  
 5 10 15 20

gga cag ctg agt ttc aaa ggc aag agc ctc aaa ctc aac act gca gaa 450  
 Gly Gln Leu Ser Phe Lys Gly Lys Ser Leu Lys Leu Asn Thr Ala Glu  
 21 26 31 36

gat gct aaa gat gtg att aaa gag att gaa gac ttt gac agc ttg gag 498  
 Asp Ala Lys Asp Val Ile Lys Glu Ile Glu Asp Phe Asp Ser Leu Glu  
 37 42 47 52

gct ctg cgt ctg gaa ggc aac aca gtg ggc gtg gaa gca gcc agg gtc	546
Ala Leu Arg Leu Glu Gly Asn Thr Val Gly Val Glu Ala Ala Arg Val	
53 58 63 68	
atc gcc aag gcc tta gag aag aag tcg gag ttg aag cgc tgc cac tgg	594
Ile Ala Lys Ala Leu Glu Lys Lys Ser Glu Leu Lys Arg Cys His Trp	
69 74 79 84	
agt gac atg ttc acg gga agg ctg cgg acc gag atc cca cca gcc ctg	642
Ser Asp Met Phe Thr Gly Arg Leu Arg Thr Glu Ile Pro Pro Ala Leu	
85 90 95 100	
atc tca cta ggg gaa gga ctc atc aca gct ggg gct cag ctg gtg gag	690
Ile Ser Leu Gly Glu Gly Leu Ile Thr Ala Gly Ala Gln Leu Val Glu	
101 106 111 116	
ctg gac tta agc gac aac gca ttc ggg ccc gac ggt gtg caa gcc ttc	738
Leu Asp Leu Ser Asp Asn Ala Phe Gly Pro Asp Gly Val Gln Gly Phe	
117 122 127 132	
gag gcc ctg ctc aag agc tca gcc tgc ttc acc ctg cag gaa ctc aag	786
Glu Ala Leu Leu Lys Ser Ser Ala Cys Phe Thr Leu Gln Glu Leu Lys	
133 138 143 148	
ctc aac aac tgt ggc atg ggc att ggc ggc ggc aag atc ctg gct gca	834
Leu Asn Asn Cys Gly Met Gly Ile Gly Gly Lys Ile Leu Ala Ala	
149 154 159 164	
gct ctg acc gaa tgt cac cgg aaa tcc agt gcc caa ggc aag cct ctg	882
Ala Leu Thr Glu Cys His Arg Lys Ser Ser Ala Gln Gly Lys Pro Leu	
165 170 175 180	
gcc ctg aag gtc ttt gtg gct ggc aga aac cgt ctg gag aat gat ggc	930
Ala Leu Lys Val Phe Val Ala Gly Arg Asn Arg Leu Glu Asn Asp Gly	
181 186 191 196	
gcc act gcc ttg gca gaa gct ttt agg gtc atc ggg acc ctg gag gag	978
Ala Thr Ala Leu Ala Glu Ala Phe Arg Val Ile Gly Thr Leu Glu Glu	
197 202 207 212	
gtc cac atg cca cag aat ggg atc aac cac cct ggc atc act gcc ctg	1026
Val His Met Pro Gln Asn Gly Ile Asn His Pro Gly Ile Thr Ala Leu	
213 218 223 228	
gcc cag gct ttc gct gtc aac ccc ctg ctg cgg gtc atc aac ctg aat	1074
Ala Gln Ala Phe Ala Val Asn Pro Leu Leu Arg Val Ile Asn Leu Asn	
229 234 239 244	
gac aac acc ttc act gag aag ggc gcc gtg gcc atg gcc gag acc ttg	1122
Asp Asn Thr Phe Thr Glu Lys Gly Ala Val Ala Met Ala Glu Thr Leu	
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aag acc ttg cgg cag gtg gag gtg att aat ttt ggg gac tgc ctg gtg	1170
Lys Thr Leu Arg Gln Val Glu Val Ile Asn Phe Gly Asp Cys Leu Val	
261 266 271 276	

cgc tcc aag ggt gca gtt gcc att gca gat gcc atc cgc ggc ggc ctg	1218
Arg Ser Lys Gly Ala Val Ala Ile Ala Asp Ala Ile Arg Gly Gly Leu	
277 282 287 292	
ccc aag cta aag gag ctg aac ttg tca ttc tgt gaa atc aag agg gat	1266
Pro Lys Leu Lys Glu Leu Asn Leu Ser Phe Cys Glu Ile Lys Arg Asp	
293 298 303 308	
gct gcc ctg gct gtt gct gag gcc atg gca gac aaa gct gag ctg gag	1314
Ala Ala Leu Ala Val Ala Glu Ala Met Ala Asp Lys Ala Glu Leu Glu	
309 314 319 324	
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Lys Leu Asp Leu Asn Gly Asn Thr Leu Gly Glu Glu Gly Cys Glu Gln	
325 330 335 340	
ctt cag gag gtg ctg gag ggc ttc aac atg gcc aag gtg ctg gcg tcc	1410
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Glu Lys Ser Ala Thr Pro Ser Arg Lys Ile Leu Asp Pro Asn Thr Gly	
405 410 415 420	
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Glu Pro Ala Pro Val Leu Ser Ser Pro Pro Pro Ala Asp Val Ser Thr	
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Phe Leu Ala Phe Pro Ser Pro Glu Lys Leu Leu Arg Leu Gly Pro Lys	
437 442 447 452	
agc tcc gtg ctg ata gcc cag cag act gac acg tct gac ccc gag aag	1746
Ser Ser Val Leu Ile Ala Gln Gln Thr Asp Thr Ser Asp Pro Glu Lys	
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Val Val Ser Ala Phe Leu Lys Val Ser Ser Val Phe Lys Asp Glu Ala	
469 474 479 484	
act gtg agg atg gca gtg cag gat gca gta gat gcc ctg atg cag aag	1842
Thr Val Arg Met Ala Val Gln Asp Ala Val Asp Ala Leu Met Gln Lys	
485 490 495 500	
gct ttc aac tcc tcg tcc ttc aac tcc aac acc ttc ctc acc agg ctc	1890

Ala Phe Asn Ser Ser	Ser Phe Asn Ser Asn	Thr Phe Leu Thr Arg Leu	
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ctc gtg cac atg ggt	ctg ctc aag agt gaa	gac aag gtc aag gcc att	1938
Leu Val His Met Gly	Leu Leu Lys Ser Glu	Asp Lys Val Lys Ala Ile	
517	522	527	532
gcc aac ctg tac ggc	ccc ctg atg gcg ctg	aac cac atg gtg cag cag	1986
Ala Asn Leu Tyr Gly	Pro Leu Met Ala Leu	Asn His Met Val Gln Gln	
533	538	543	548
gac tat ttc ccc aag	gcc ctt gca ccc ctg	ctg ctg gcg ttc gtg acc	2034
Asp Tyr Phe Pro Lys	Ala Leu Ala Pro Leu	Leu Leu Ala Phe Val Thr	
549	554	559	564
aag ccc aac agc gcc	ctg gaa tcc tgc tcc	ttc gcc cgc cac agt ctg	2082
Lys Pro Asn Ser Ala	Leu Glu Ser Cys Ser	Phe Ala Arg His Ser Leu	
565	570	575	580
ctg cag acg ctg tac	aag gtc tag actcaaagcc	tctcccatcc cttggcctgg	2136
Leu Gln Thr Leu Tyr	Lys Val *		
581	586		
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<400> 258

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tacgtctgca gatctccagg ggagcccacc agcctagtca ac atg gcc tcg gaa						354									
Met Ala Ser Glu															
1															
gac att gcc aag ctg gca gag aca ctt gcc aag act cag gtg gcc ggg						402									
Asp	Ile	Ala	Lys	Leu	Ala	Glu	Thr	Leu	Ala	Lys	Thr	Gln	Val	Ala	Gly
5				10				15					20		
gga cag ctg agt ttc aaa ggc aag agc ctc aaa ctc aac act gca gaa						450									
Gly	Gln	Leu	Ser	Phe	Lys	Gly	Lys	Ser	Leu	Lys	Leu	Asn	Thr	Ala	Glu
21				26				31					36		
gat gct aaa gat gtg att aaa gag att gaa gac ttt gac agc ttg gag						498									
Asp	Ala	Lys	Asp	Val	Ile	Lys	Glu	Ile	Glu	Asp	Phe	Asp	Ser	Leu	Glu
37				42				47					52		
gct ctg cgt ctg gaa ggc aac aca gtg ggc gtg gaa gca gcc agg gtc						546									
Ala	Leu	Arg	Leu	Glu	Gly	Asn	Thr	Val	Gly	Val	Glu	Ala	Ala	Arg	Val
53				58				63					68		
atc gcc aag gcc tta gag aag aag tcg gag ttg aag cgc tgc cac tgg						594									
Ile	Ala	Lys	Ala	Leu	Glu	Lys	Lys	Ser	Glu	Leu	Lys	Arg	Cys	His	Trp
69				74				79					84		
agt gac atg ttc acg gga agg ctg cgg acc gag atc cca cca gcc ctg						642									
Ser	Asp	Met	Phe	Thr	Gly	Arg	Leu	Arg	Thr	Glu	Ile	Pro	Pro	Ala	Leu
85				90				95					100		
atc tca cta ggg gaa gga ctc atc aca gct ggg gct cag ctg gtg gag						690									
Ile	Ser	Leu	Gly	Glu	Gly	Leu	Ile	Thr	Ala	Gly	Ala	Gln	Leu	Val	Glu
101				106				111					116		
ctg gac tta agc gac aac gca ttc ggg ccc gac ggt gtg caa ggc ttc						738									
Leu	Asp	Leu	Ser	Asp	Asn	Ala	Phe	Gly	Pro	Asp	Gly	Val	Gln	Gly	Phe

117	122	127	132	
gag gcc ctg ctc aag agc tca gcc tgc ttc acc ctg cag gaa ctc aag				786
Glu Ala Leu Leu Lys Ser Ser Ala Cys Phe Thr Leu Gln Glu Leu Lys				
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ctc aac aac tgt ggc atg ggc att ggc ggc ggc aag atc ctg gct gca				834
Leu Asn Asn Cys Gly Met Gly Ile Gly Gly Lys Ile Leu Ala Ala				
149	154	159	164	
gct ctg acc gaa tgt cac cgg aaa tcc agt gcc caa ggc aag cct ctg				882
Ala Leu Thr Glu Cys His Arg Lys Ser Ser Ala Gln Gly Lys Pro Leu				
165	170	175	180	
gcc ctg aag gtc ttt gtg gct ggc aga aac cgt ctg gag aat gat ggc				930
Ala Leu Lys Val Phe Val Ala Gly Arg Asn Arg Leu Glu Asn Asp Gly				
181	186	191	196	
gcc act gcc ttg gca gaa gct ttt agg gtc atc ggg acc ctg gag gag				978
Ala Thr Ala Leu Ala Glu Ala Phe Arg Val Ile Gly Thr Leu Glu Glu				
197	202	207	212	
gtc cac atg cca cag aat ggg atc aac cac cct ggc atc act gcc ctg				1026
Val His Met Pro Gln Asn Gly Ile Asn His Pro Gly Ile Thr Ala Leu				
213	218	223	228	
gcc cag gct ttc gct gtc aac ccc ctg ctg cgg gtc atc aac ctg aat				1074
Ala Gln Ala Phe Ala Val Asn Pro Leu Leu Arg Val Ile Asn Leu Asn				
229	234	239	244	
gac aac acc ttc act gag aag ggc gcc gtg gcc atg gcc gag acc ttg				1122
Asp Asn Thr Phe Thr Glu Lys Gly Ala Val Ala Met Ala Glu Thr Leu				
245	250	255	260	
aag acc ttg cgg cag gtg gag gtg att aat ttt ggg gac tgc ctg gtg				1170
Lys Thr Leu Arg Gln Val Glu Val Ile Asn Phe Gly Asp Cys Leu Val				
261	266	271	276	
cgc tcc aag ggt gca gtt gcc att gca gat gcc atc cgc ggc ggc ctg				1218
Arg Ser Lys Gly Ala Val Ala Ile Ala Asp Ala Ile Arg Gly Gly Leu				
277	282	287	292	
ccc aag cta aag gag ctg aac ttg tca ttc tgt gaa atc aag agg gat				1266
Pro Lys Leu Lys Glu Leu Asn Leu Ser Phe Cys Glu Ile Lys Arg Asp				
293	298	303	308	
gct gcc ctg gct gtt gct gag gcc atg gca gac aaa gct gag ctg gag				1314
Ala Ala Leu Ala Val Ala Glu Ala Met Ala Asp Lys Ala Glu Leu Glu				
309	314	319	324	
aag ctg gac ctg aat ggc aac acc ctg gga gaa gaa ggc tgt gaa cag				1362
Lys Leu Asp Leu Asn Gly Asn Thr Leu Gly Glu Glu Gly Cys Glu Gln				
325	330	335	340	
ctt cag gag gtg ctg gag ggc ttc aac atg gcc aag gtg ctg gcg tcc				1410
Leu Gln Glu Val Leu Glu Gly Phe Asn Met Ala Lys Val Leu Ala Ser				
341	346	351	356	

ctc agt gat gac gag gac gag gag gag gag gag gaa gaa gag cct cag	1458
Leu Ser Asp Asp Glu Asp Glu Glu Glu Glu Glu Glu Glu Glu Pro Gln	
357 362 367 372	
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Gln Arg Gly Gln Gly Glu Lys Ser Ala Thr Pro Ser Arg Lys Ile Leu	
373 378 383 388	
gac cct aac act ggg gag cca gct ccc gtg ctg tcc tcc cca cct cct	1554
Asp Pro Asn Thr Gly Glu Pro Ala Pro Val Leu Ser Ser Pro Pro Pro	
389 394 399 404	
gca gac gtc tcc acc ttc ctg gct ttt ccc tct cca gag aag ctg ctg	1602
Ala Asp Val Ser Thr Phe Leu Ala Phe Pro Ser Pro Glu Lys Leu Leu	
405 410 415 420	
cgc cta ggg ccc aag agc tcc gtg ctg ata gcc cag cag act gac acg	1650
Arg Leu Gly Pro Lys Ser Ser Val Leu Ile Ala Gln Gln Thr Asp Thr	
421 426 431 436	
tct gac ccc gag aag gtg gtc tct gcc ttc cta aag gtg tca tct gtg	1698
Ser Asp Pro Glu Lys Val Val Ser Ala Phe Leu Lys Val Ser Ser Val	
437 442 447 452	
ttc aag gac gaa gct act gtg agg atg gca gtg cag gat gca gta gat	1746
Phe Lys Asp Glu Ala Thr Val Arg Met Ala Val Gln Asp Ala Val Asp	
453 458 463 468	
gcc ctg atg cag aag gct ttc aac tcc tcg tcc ttc aac tcc aac acc	1794
Ala Leu Met Gln Lys Ala Phe Asn Ser Ser Ser Phe Asn Ser Asn Thr	
469 474 479 484	
ttc ctc acc agg ctc ctc gtg cac atg ggt ctg ctc aag agt gaa gac	1842
Phe Leu Thr Arg Leu Leu Val His Met Gly Leu Leu Lys Ser Glu Asp	
485 490 495 500	
aag gtc aag gcc att gcc aac ctg tac ggc ccc ctg atg gcg ctg aac	1890
Lys Val Lys Ala Ile Ala Asn Leu Tyr Gly Pro Leu Met Ala Leu Asn	
501 506 511 516	
cac atg gtg cag cag gac tat ttc ccc aag gcc ctt gca ccc ctg ctg	1938
His Met Val Gln Gln Asp Tyr Phe Pro Lys Ala Leu Ala Pro Leu Leu	
517 522 527 532	
ctg gcg ttc gtg acc aag ccc aac agc gcc ctg gaa tcc tgc tcc ttc	1986
Leu Ala Phe Val Thr Lys Pro Asn Ser Ala Leu Glu Ser Cys Ser Phe	
533 538 543 548	
gcc cgc cac agt ctg ctg cag acg ctg tac aag gtc tag actcaaagcc	2035
Ala Arg His Ser Leu Leu Gln Thr Leu Tyr Lys Val *	
549 554 559	
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gcctacgccca ttgccttgga caggactctg gccacaggca gggcggtct gtgtcccatg	2155

tgtcctgtca gtcccctgag tatgtgtgtg ggtgtggcgc atgtgcaggt ctgtgcctcc 2215  
 tgtcgggatt tgggttttaa cgtcttctgc tggcccagcc ctgctctgtt gtggggagtt 2275  
 ggcccccagg ggaaagggtc gtgagctgct ccgccattaa actcacctcc acctgagggc 2335  
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 ccgcttagag atttgggggg ctctggcccc gtccctgcgg accattccga ggggagtcca 180  
 gaggtgtcag taattaacac tgtggatacc tcccatgagg ac atg att cac gac 234  
 Met Ile His Asp  
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 gcc cag atg gac tac tat ggc acc cgc ctg gca acc tgc tca tca gac 282  
 Ala Gln Met Asp Tyr Tyr Gly Thr Arg Leu Ala Thr Cys Ser Ser Asp  
 5 10 15 20

agg tcc gtc aaa atc ttt gat gtg cgc aat gga ggg cag atc ctt atc	330
Arg Ser Val Lys Ile Phe Asp Val Arg Asn Gly Gly Gln Ile Leu Ile	
21 26 31 36	
gcc gac ctc agg ggt cat gag ggt cct gtg tgg caa gtg gcc tgg gct	378
Ala Asp Leu Arg Gly His Glu Gly Pro Val Trp Gln Val Ala Trp Ala	
37 42 47 52	
cac ccc atg tac ggc aac atc ctg gca tgc tgc tcc tat gac cgg aaa	426
His Pro Met Tyr Gly Asn Ile Leu Ala Ser Cys Ser Tyr Asp Arg Lys	
53 58 63 68	
gtc att atc tgg aga gag gaa aac ggc acc tgg gag aag agc cac gag	474
Val Ile Ile Trp Arg Glu Glu Asn Gly Thr Trp Glu Lys Ser His Glu	
69 74 79 84	
cat gcg gga cac gac tcc tca gtg aac tgc gtg tgc tgg gcc ccc cat	522
His Ala Gly His Asp Ser Ser Val Asn Ser Val Cys Trp Ala Pro His	
85 90 95 100	
gac tac ggc ctg atc ctg gcc tgt ggg agc tgc gat ggg gcc atc tcc	570
Asp Tyr Gly Leu Ile Leu Ala Cys Gly Ser Ser Asp Gly Ala Ile Ser	
101 106 111 116	
ctg ctg act tac acc ggg gaa ggc caa tgg gaa gta aag aag atc aac	618
Leu Leu Thr Tyr Thr Gly Glu Gly Gln Trp Glu Val Lys Lys Ile Asn	
117 122 127 132	
aac gct cac acc att ggc tgc aat gcc gtc agc tgg gcc cct gct gtt	666
Asn Ala His Thr Ile Gly Cys Asn Ala Val Ser Trp Ala Pro Ala Val	
133 138 143 148	
gta cct gga agc ctc ata gac cac cca tgc ggg cag aaa ccc aat tac	714
Val Pro Gly Ser Leu Ile Asp His Pro Ser Gly Gln Lys Pro Asn Tyr	
149 154 159 164	
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Ile Lys Arg Phe Ala Ser Gly Gly Cys Asp Asn Leu Ile Lys Leu Trp	
165 170 175 180	
aag gag gag gag gac ggc cag tgg aag gag gag cag aag cta gaa gcg	810
Lys Glu Glu Glu Asp Gly Gln Trp Lys Glu Glu Gln Lys Leu Glu Ala	
181 186 191 196	
cac agt gac tgg gtt cga gat gtg gcc tgg gcc ccc tcc atc ggc ctg	858
His Ser Asp Trp Val Arg Asp Val Ala Trp Ala Pro Ser Ile Gly Leu	
197 202 207 212	
ccc acc agc acc atc gcc agc tgc tcc cag gat ggt cgt gtg ttc att	906
Pro Thr Ser Thr Ile Ala Ser Cys Ser Gln Asp Gly Arg Val Phe Ile	
213 218 223 228	
tgg acc tgt gat gat gcc tca agc aat acg tgg tcc cct aaa ttg ttg	954
Trp Thr Cys Asp Asp Ala Ser Ser Asn Thr Trp Ser Pro Lys Leu Leu	
229 234 239 244	
cac aag ttc aac gat gtg gtg tgg cat gtg agc tgg tcc atc aca gcc	1002

His Lys Phe Asn Asp Val Val Trp His Val Ser Trp Ser Ile Thr Ala	
245 250 255 260	
aac atc ctg gct gtc tct ggt gga gac aat aag gtg acc ctg tgg aag	1050
Asn Ile Leu Ala Val Ser Gly Gly Asp Asn Lys Val Thr Leu Trp Lys	
261 266 271 276	
gag tca gtt gat ggg cag tgg gtg tgc atc agt gat gtc aac aag ggc	1098
Glu Ser Val Asp Gly Gln Trp Val Cys Ile Ser Asp Val Asn Lys Gly	
277 282 287 292	
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Gln Gly Ser Val Ser Ala Ser Val Thr Glu Gly Gln Gln Asn Glu Gln	
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309	
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aggagttaca gatgcagcca cagattgatc atctgcctta acgtgatcgg agatgctttg	1323
taatctactg tccagctgaa agcactcatg ttacgaggaa gaaactacaa gtgatgttca	1383
aatctatattt gggtcatttt tatgtacctt tgggttcagg cattatttgg ggggttttgt	1443
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ggagagtcaa ggag atg act tct acc ttg cca aag gcc ttg gga aga aag	170
Met Thr Ser Thr Leu Pro Lys Ala Leu Gly Arg Lys	
1 5 10	
aca gca tca agg tct cac aca aca ctc cag gga ggc agc tgc tgc cca	218
Thr Ala Ser Arg Ser His Thr Thr Leu Gln Gly Gly Ser Cys Cys Pro	
13 18 23 28	
gtg ctg tgg aca gca aag ctt cgg tgc agg aaa tta aga ttc ccc ctg	266
Val Leu Trp Thr Ala Lys Leu Arg Cys Arg Lys Leu Arg Phe Pro Leu	
29 34 39 44	

cct	ccc	cct	ccc	cca	tcc	tca	tca	gct	tgg	cca	tgg	cag	ggc	tgg	ggg	314
Pro	Pro	Pro	Pro	Pro	Ser	Ser	Ser	Ala	Trp	Pro	Trp	Gln	Gly	Trp	Gly	
45					50				55						60	

atc	aga	ggt	gaa	cag	gaa	gca	gaa	gga	ccc	ctg	ggg	gag	aca	ggg	cct	362
Ile	Arg	Gly	Glu	Gln	Glu	Ala	Glu	Gly	Pro	Leu	Gly	Glu	Thr	Gly	Pro	
61					66				71						76	

cca	gtg	gga	cca	gag	ctg	agt	ggc	ctc	agg	cag	tgg	cgg	aag	ctg	att	410
Pro	Val	Gly	Pro	Glu	Leu	Ser	Gly	Leu	Arg	Gln	Trp	Arg	Lys	Leu	Ile	
77					82				87						92	

aaa	gga	agg	tac	ggg	gag	tgg	agg	gga	agt	gga	caa	aag	aca	gga	cag	458
Lys	Gly	Arg	Tyr	Gly	Glu	Trp	Arg	Gly	Ser	Gly	Gln	Lys	Thr	Gly	Gln	
93					98				103						108	

cca	tct	tag	aca	caa	tgca	aggggg	agaa	actgaa	gaaa	acagaa	cagag	accac	514
Pro	Ser	*											
109													

tact	ggcaat	aaacagagag	aaagtgaagc	cccatgggtg	aggcacacct	acattactta	574
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agaa	acgtga	gcacattctt	acgcctaggg	caataaatac	atccttgagc	tacacaggct	634
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gcgactacct	tgagagtagc	gggttgaggt	gtaagccctg	aggaggcagc	gttttctggtg	120
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cttctgtctg	gttctctctc	tccagaaggt	tctgccgggt	ccccagctc	tgggtaccgg	180
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gctctgcac	gcgtcgcc	atg	atg	ggc	cat	cgt	cca	gtg	ctc	gtg	ctc	agc	231
		Met	Met	Gly	His	Arg	Pro	Val	Leu	Val	Leu	Ser	
		1				5							

cag	aac	aca	aag	cgt	gaa	tcc	gga	aga	aaa	gtt	caa	tct	gga	aac	atc	279
Gln	Asn	Thr	Lys	Arg	Glu	Ser	Gly	Arg	Lys	Val	Gln	Ser	Gly	Asn	Ile	
12					17				22						27	

aat	gct	gcc	aag	act	att	gca	gat	atc	atc	cga	aca	tgt	ttg	gga	ccc	327
Asn	Ala	Ala	Lys	Thr	Ile	Ala	Asp	Ile	Ile	Arg	Thr	Cys	Leu	Gly	Pro	
28					33				38						43	

aag tcc atg atg aag atg ctt ttg gac cca atg gga ggc att gtg atg	375
Lys Ser Met Met Lys Met Leu Leu Asp Pro Met Gly Gly Ile Val Met	
44 49 54 59	
acc aat gat ggc aat gcc att ctt cga gag att caa gtc cag cat cca	423
Thr Asn Asp Gly Asn Ala Ile Leu Arg Glu Ile Gln Val Gln His Pro	
60 65 70 75	
gcg gcc aag tcc atg atc gaa att agc cgg acc cag gat gaa gag gtt	471
Ala Ala Lys Ser Met Ile Glu Ile Ser Arg Thr Gln Asp Glu Glu Val	
76 81 86 91	
gga gat ggg acc aca tca gta att att ctt gca ggg gaa atg ctg tct	519
Gly Asp Gly Thr Thr Ser Val Ile Ile Leu Ala Gly Glu Met Leu Ser	
92 97 102 107	
gta gct gag cac ttc ctg gag cag cag atg cac cca aca gtg gtg atc	567
Val Ala Glu His Phe Leu Glu Gln Gln Met His Pro Thr Val Val Ile	
108 113 118 123	
agt gct tac cgc aag gca ttg gat gat atg atc agc acc cta aag aaa	615
Ser Ala Tyr Arg Lys Ala Leu Asp Asp Met Ile Ser Thr Leu Lys Lys	
124 129 134 139	
ata agt atc cca gtc gac atc agt gac agt gat atg atg ctg aac atc	663
Ile Ser Ile Pro Val Asp Ile Ser Asp Ser Asp Met Met Leu Asn Ile	
140 145 150 155	
atc aac agc tct att act acc aaa gcc atc agt cgg tgg tca tct ttg	711
Ile Asn Ser Ser Ile Thr Thr Lys Ala Ile Ser Arg Trp Ser Ser Leu	
156 161 166 171	
gct tgc aac att gcc ctg gat gct gtc aag atg gta cag ttt gag gag	759
Ala Cys Asn Ile Ala Leu Asp Ala Val Lys Met Val Gln Phe Glu Glu	
172 177 182 187	
aat ggt cgg aaa gag att gac ata aaa aaa tat gca aga gtg gaa aag	807
Asn Gly Arg Lys Glu Ile Asp Ile Lys Lys Tyr Ala Arg Val Glu Lys	
188 193 198 203	
ata cct gga ggc atc att gaa gac tcc tgt gtc ttg cgt gga gtc atg	855
Ile Pro Gly Gly Ile Ile Glu Asp Ser Cys Val Leu Arg Gly Val Met	
204 209 214 219	
att aac aag gat gtg acc cat cca cgt atg cgg cgc tat atc aag aac	903
Ile Asn Lys Asp Val Thr His Pro Arg Met Arg Arg Tyr Ile Lys Asn	
220 225 230 235	
cct cgc att gtg ctg ctg gat tct tct ctg gaa tac aag aaa gga gaa	951
Pro Arg Ile Val Leu Leu Asp Ser Ser Leu Glu Tyr Lys Lys Gly Glu	
236 241 246 251	
agc cag act gac att gag att aca cga gag gag gac ttc acc cga att	999
Ser Gln Thr Asp Ile Glu Ile Thr Arg Glu Glu Asp Phe Thr Arg Ile	
252 257 262 267	

ctc cag atg gag gaa gag tac atc cag cag ctc tgt gag gac att atc	1047
Leu Gln Met Glu Glu Glu Tyr Ile Gln Gln Leu Cys Glu Asp Ile Ile	
268 273 278 283	
caa ctg aag ccc gat gtg gtc atc act gaa aag ggc atc tca gat tta	1095
Gln Leu Lys Pro Asp Val Val Ile Thr Glu Lys Gly Ile Ser Asp Leu	
284 289 294 299	
gct cag cac tac ctt atg cgg gcc aat atc aca gcc atc cgc aga gtc	1143
Ala Gln His Tyr Leu Met Arg Ala Asn Ile Thr Ala Ile Arg Arg Val	
300 305 310 315	
cgg aag aca gac aat aat cgc att gct aga gcc tgt ggg gcc cgg ata	1191
Arg Lys Thr Asp Asn Asn Arg Ile Ala Arg Ala Cys Gly Ala Arg Ile	
316 321 326 331	
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Val Ser Arg Pro Glu Glu Leu Arg Glu Asp Asp Val Gly Thr Gly Ala	
332 337 342 347	
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Gly Leu Leu Glu Ile Lys Lys Ile Gly Asp Glu Tyr Phe Thr Phe Ile	
348 353 358 363	
act gac tgc aaa gac ccc aag gcc tgc acc att ctc ctc cgg ggg gct	1335
Thr Asp Cys Lys Asp Pro Lys Ala Cys Thr Ile Leu Leu Arg Gly Ala	
364 369 374 379	
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Ser Lys Glu Ile Leu Ser Glu Val Glu Arg Asn Leu Gln Asp Ala Met	
380 385 390 395	
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Gln Val Cys Arg Asn Val Leu Leu Asp Pro Gln Leu Val Pro Gly Gly	
396 401 406 411	
ggg gcc tcc gag atg gct gtg gcc cat gcc ttg aca gaa aaa tcc aag	1479
Gly Ala Ser Glu Met Ala Val Ala His Ala Leu Thr Glu Lys Ser Lys	
412 417 422 427	
gcc atg act ggt gtg gaa caa tgg cca tac agg gct gtt gcc cag gcc	1527
Ala Met Thr Gly Val Glu Gln Trp Pro Tyr Arg Ala Val Ala Gln Ala	
428 433 438 443	
cta gag gtc att cct cgt acc ctg atc cag aac tgt ggg gcc agc acc	1575
Leu Glu Val Ile Pro Arg Thr Leu Ile Gln Asn Cys Gly Ala Ser Thr	
444 449 454 459	
atc cgt cta ctt acc tcc ctt cgg gcc aag cac acc cag gag aac tgt	1623
Ile Arg Leu Leu Thr Ser Leu Arg Ala Lys His Thr Gln Glu Asn Cys	
460 465 470 475	
gag acc tgg ggt gta aat ggt gag acg ggt act ttg gtg gac atg aag	1671
Glu Thr Trp Gly Val Asn Gly Glu Thr Gly Thr Leu Val Asp Met Lys	
476 481 486 491	
gaa ctg ggc ata tgg gag cca ttg gct gtg aag ctg cag act tat aag	1719

Glu Leu Gly Ile Trp	Glu Pro Leu Ala Val	Lys Leu Gln Thr Tyr Lys	
492	497	502	507
aca gca gtg gag acg	gca gtt ctg cta ctg	cga att gat gac atc gtt	1767
Thr Ala Val Glu Thr	Ala Val Leu Leu Leu	Arg Ile Asp Asp Ile Val	
508	513	518	523
tca ggc cac aaa aag	aaa ggc gat gac cag agc	cgg caa ggc ggg gct	1815
Ser Gly His Lys Lys	Lys Gly Asp Asp Gln Ser	Arg Gln Gly Gly Ala	
524	529	534	539
cct gat gct ggc cag	gag tga gt gctaggcaag	gctacttcaa tgcacagaac	1868
Pro Asp Ala Gly Gln Glu	*		
540	545		
cagcagagtc tcccccttttc	ctgagccaga gtgccaggaa	caactgtggac gtctttgttc	1928
agaaggggac aggttgggggg	gcagcccccga gtccctttct	gtcccagctc agttttccaa	1988
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Met Ala Ala Val Asp Asp Leu Gln Phe Glu Glu Phe Gly Asn	
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Ala Ala Thr Ser Leu Thr Ala Asn Pro Asp Ala Thr Thr Val Asn Ile	
15 20 25 30	
gag gat cct ggt gaa acc cca aaa cat cag cca gga tcc cca aga ggc	325
Glu Asp Pro Gly Glu Thr Pro Lys His Gln Pro Gly Ser Pro Arg Gly	
31 36 41 46	
tca gga aga gaa gaa gat gat gag tta ctg gga aat gat gac tct gac	373
Ser Gly Arg Glu Glu Asp Asp Glu Leu Leu Gly Asn Asp Asp Ser Asp	
47 52 57 62	

aaa act gag tta ctt gct gga cag aag aaa agc tcc ccc ttc tgg aca	421
Lys Thr Glu Leu Leu Ala Gly Gln Lys Lys Ser Ser Pro Phe Trp Thr	
63 68 73 78	
ttt gaa tac tac caa aca ttc ttt gat gtg gac acc tac cag gtc ttt	469
Phe Glu Tyr Tyr Gln Thr Phe Phe Asp Val Asp Thr Tyr Gln Val Phe	
79 84 89 94	
gac aga att aaa gga tct ctt ttg cca ata ccc ggg aaa aac ttt gtg	517
Asp Arg Ile Lys Gly Ser Leu Leu Pro Ile Pro Gly Lys Asn Phe Val	
95 100 105 110	
agg tta tat atc cgc agc aat cca gat ctc tat ggc ccc ttt tgg ata	565
Arg Leu Tyr Ile Arg Ser Asn Pro Asp Leu Tyr Gly Pro Phe Trp Ile	
111 116 121 126	
tgt gcc acg ttg gtc ttt gcc ata gca att agt ggg aat ctt tcc aac	613
Cys Ala Thr Leu Val Phe Ala Ile Ala Ile Ser Gly Asn Leu Ser Asn	
127 132 137 142	
ttc ttg atc cat ctg gga gag aag acg tac cat tat gtg ccc gaa ttc	661
Phe Leu Ile His Leu Gly Glu Lys Thr Tyr His Tyr Val Pro Glu Phe	
143 148 153 158	
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Arg Lys Val Ser Ile Ala Ala Thr Ile Ile Tyr Ala Tyr Ala Trp Leu	
159 164 169 174	
gtt cct ctt gca ctc tgg ggt ttc ctc atg tgg aga aac agc aaa gtt	757
Val Pro Leu Ala Leu Trp Gly Phe Leu Met Trp Arg Asn Ser Lys Val	
175 180 185 190	
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Met Asn Ile Val Ser Tyr Ser Phe Leu Glu Ile Val Cys Val Tyr Gly	
191 196 201 206	
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Tyr Ser Leu Phe Ile Tyr Ile Pro Thr Ala Ile Leu Trp Ile Ile Pro	
207 212 217 222	
cag aaa gct gtt cgt tgg att cta gtc atg att gcc ctg ggc atc tca	901
Gln Lys Ala Val Arg Trp Ile Leu Val Met Ile Ala Leu Gly Ile Ser	
223 228 233 238	
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Gly Ser Leu Leu Ala Met Thr Phe Trp Pro Ala Val Arg Glu Asp Asn	
239 244 249 254	
cga cgc gtt gca ttg gcc aca att gtg aca att gtg ttg ctc cat atg	997
Arg Arg Val Ala Leu Ala Thr Ile Val Thr Ile Val Leu Leu His Met	
255 260 265 270	
ctg ctt tct gtg ggc tgc ttg gca tac ttt ttt gat gca cca gag atg	1045
Leu Leu Ser Val Gly Cys Leu Ala Tyr Phe Phe Asp Ala Pro Glu Met	
271 276 281 286	

gac cat ctc cca aca act aca gct act cca aac caa aca gtt gct gca 1093  
 Asp His Leu Pro Thr Thr Thr Ala Thr Pro Asn Gln Thr Val Ala Ala  
 287 292 297 302

gcc aag tcc agc taa tgaggaaaga ctcaacttgag ataccctctc cttgctgaag 1148  
 Ala Lys Ser Ser \*  
 303

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tgccaccaca gtcaaagac atgcttcaact gtggtacctt aatacctgaa atagaacctt 1508

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 Met Thr Ala His Ser Phe Ala Leu Pro  
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gtc atc atc ttc acc acg ttc tgg ggc ctc gtc ggc atc gcc ggg ccc 160  
 Val Ile Ile Phe Thr Thr Phe Trp Gly Leu Val Gly Ile Ala Gly Pro  
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tgg ttc gtg ccg aag gga ccc aac cgc gga gtg atc atc acc atg ctg 208  
 Trp Phe Val Pro Lys Gly Pro Asn Arg Gly Val Ile Ile Thr Met Leu  
 26 31 36 41

gtc gcc acc gcc gtc tgc tgt tac ctc ttc tgg ctc atc gcc atc ctg 256  
 Val Ala Thr Ala Val Cys Cys Tyr Leu Phe Trp Leu Ile Ala Ile Leu

42	47	52	57	
gcg cag ctg aac ccc ctg ttc ggg ccc cag ctg aag aat gag acc atc				304
Ala Gln Leu Asn Pro Leu Phe Gly Pro Gln Leu Lys Asn Glu Thr Ile				
58	63	68	73	
tgg tac gtg cgc ttc ctg tgg gag tga cccgc ccccccgac ccaggtgccc				356
Trp Tyr Val Arg Phe Leu Trp Glu *				
74	79			
agctctcgga atgactgtgg ctccactgtc cctgacaacc ccttcgtccg gaccctcccc				416
cacacaacta tgtctggtca ccagctccct cctgctggca cccagagacc cggacccgca				476
gggcctgcct ggttcctgga agtcttccca gtcttccag ccagcccgga cctggggag				536
ccctgggcac agcagcgccc gaggggatgt cctgctccaa taccgcact gctctggagt				596
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ctgggaactg ggggggcctc tattgggtta taggcaaggc cttttctctg gcatggaatt				836
gttaattttc tgacacgtct agatgtgaaa tttctgaaaa tgttgaagca gagaaacatt				896
cacacacaaa aagcaacata gtcattgtggg tccagatggc ctcagtccta gatgttggca				956
ccctttgctg tgtctcctca gactatcctg ttccgcctcc tgccacctgg acctccctca				1016
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tcaccacact tgcttggtc ccagctgggg cctgtcctca ctggtgctcc aggggaagaa				1436
acgacagcct cacttctgta tggactgctg atgtggcctg ccatcctgtt cagcgggcat				1496
tgtctttgga gcagcaggag aataggatgc ctctcactca catgccagtt cctggctggc				1556
cagctgctca gggctcaggc tggggcctcc cattgacatc cccccctac actccctctc				1616
tgagcctccg tcgccccctc tgttgggtaa ggggtgtgag tgtgacttgt gctgaaaacc				1676
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caa acc caa aaa aag aga tct ctc gag gat ccg aat tcg cgg ccg cgt	95	
Gln Thr Gln Lys Lys Arg Ser Leu Glu Asp Pro Asn Ser Arg Pro Arg		
15 20 25 30		
cga ccg cgg tct atg gct gcg act tct cta atg tct gct ttg gct gcc	143	
Arg Pro Arg Ser Met Ala Ala Thr Ser Leu Met Ser Ala Leu Ala Ala		
31 36 41 46		
cgg ctg ctg cag ccc gcg cac agc tgc tcc ctt cgc ctt cgc cct ttc	191	
Arg Leu Leu Gln Pro Ala His Ser Cys Ser Leu Arg Leu Arg Pro Phe		
47 52 57 62		
cac ctc gcg gca gtt cga aat gaa gct gtt gtc att tct gga agg aaa	239	
His Leu Ala Ala Val Arg Asn Glu Ala Val Val Ile Ser Gly Arg Lys		
63 68 73 78		
ctg gcc cag cag atc aag cag gaa gtg cgg cag gag gta gaa gag tgg	287	
Leu Ala Gln Gln Ile Lys Gln Glu Val Arg Gln Glu Val Glu Glu Trp		
79 84 89 94		
gtg gcc tca ggc aac aaa cgg cca cac ctg agt gtg atc ctg gtt ggc	335	
Val Ala Ser Gly Asn Lys Arg Pro His Leu Ser Val Ile Leu Val Gly		
95 100 105 110		
gag aat cct gca agt cac tcc tat gtc ctc aac aaa acc agg gca gct	383	
Glu Asn Pro Ala Ser His Ser Tyr Val Leu Asn Lys Thr Arg Ala Ala		
111 116 121 126		
gca gtt gtg gga atc aac agt gag aca att atg aaa cca gct tca att	431	
Ala Val Val Gly Ile Asn Ser Glu Thr Ile Met Lys Pro Ala Ser Ile		
127 132 137 142		
tca gag gaa gaa ttg ttg aat tta atc aat aaa ctg aat aat gat gat	479	
Ser Glu Glu Glu Leu Leu Asn Leu Ile Asn Lys Leu Asn Asn Asp Asp		
143 148 153 158		
aat gta gat ggc ctc ctt gtt cag ttg cct ctt cca gag cat att gat	527	
Asn Val Asp Gly Leu Leu Val Gln Leu Pro Leu Pro Glu His Ile Asp		
159 164 169 174		
gag aga agg atc tgc aat gct gtt tct cca gac aag gat gtt gat ggc	575	

Glu	Arg	Arg	Ile	Cys	Asn	Ala	Val	Ser	Pro	Asp	Lys	Asp	Val	Asp	Gly		
175					180					185					190		
ttt	cat	gta	att	aat	gta	gga	cga	atg	tgt	ttg	gat	cag	tat	tcc	atg	623	
Phe	His	Val	Ile	Asn	Val	Gly	Arg	Met	Cys	Leu	Asp	Gln	Tyr	Ser	Met		
191					196					201					206		
tta	ccg	gct	act	cca	tgg	ggt	gtg	tgg	gaa	ata	atc	aag	cga	act	ggc	671	
Leu	Pro	Ala	Thr	Pro	Trp	Gly	Val	Trp	Glu	Ile	Ile	Lys	Arg	Thr	Gly		
207					212					217					222		
att	cca	acc	cta	ggg	aag	aat	gtg	gtt	gtg	gct	gga	agg	tca	aaa	aac	719	
Ile	Pro	Thr	Leu	Gly	Lys	Asn	Val	Val	Val	Ala	Gly	Arg	Ser	Lys	Asn		
223					228					233					238		
gtt	gga	atg	ccc	att	gca	atg	tta	ctg	cac	aca	gat	ggg	gcg	cat	gaa	767	
Val	Gly	Met	Pro	Ile	Ala	Met	Leu	Leu	His	Thr	Asp	Gly	Ala	His	Glu		
239					244					249					254		
cgt	ccc	gga	ggt	gat	gcc	act	gtt	aca	ata	tct	cat	cga	tat	act	ccc	815	
Arg	Pro	Gly	Gly	Asp	Ala	Thr	Val	Thr	Ile	Ser	His	Arg	Tyr	Thr	Pro		
255					260					265					270		
aaa	gag	cag	ttg	aag	aaa	cat	aca	att	ctt	gca	gat	att	gta	ata	tct	863	
Lys	Glu	Gln	Leu	Lys	Lys	His	Thr	Ile	Leu	Ala	Asp	Ile	Val	Ile	Ser		
271					276					281					286		
gct	gca	ggt	att	cca	aat	ctg	atc	aca	gca	gat	atg	atc	aag	gaa	gga	911	
Ala	Ala	Gly	Ile	Pro	Asn	Leu	Ile	Thr	Ala	Asp	Met	Ile	Lys	Glu	Gly		
287					292					297					302		
gca	gca	gtc	att	gat	gtg	gga	ata	aat	aga	gtt	cac	gat	cct	gta	act	959	
Ala	Ala	Val	Ile	Asp	Val	Gly	Ile	Asn	Arg	Val	His	Asp	Pro	Val	Thr		
303					308					313					318		
gcc	aaa	ccc	aag	ttg	gtt	gga	gat	gtg	gat	ttt	gaa	gga	gtc	aga	caa	1007	
Ala	Lys	Pro	Lys	Leu	Val	Gly	Asp	Val	Asp	Phe	Glu	Gly	Val	Arg	Gln		
319					324					329					334		
aaa	gct	ggg	tat	atc	act	cca	gtt	cct	gga	ggt	gtt	ggc	ccc	atg	aca	1055	
Lys	Ala	Gly	Tyr	Ile	Thr	Pro	Val	Pro	Gly	Gly	Val	Gly	Pro	Met	Thr		
335					340					345					350		
gtg	gca	atg	cta	atg	aag	aat	acc	att	att	gct	gca	aaa	aag	gtg	ctg	1103	
Val	Ala	Met	Leu	Met	Lys	Asn	Thr	Ile	Ile	Ala	Ala	Lys	Lys	Val	Leu		
351					356					361					366		
agg	ctt	gaa	gag	cga	gaa	gtg	ctg	aag	tct	aaa	gag	ctt	ggg	gta	gcc	1151	
Arg	Leu	Glu	Glu	Arg	Glu	Val	Leu	Lys	Ser	Lys	Glu	Leu	Gly	Val	Ala		
367					372					377					382		
act	aat	taa	ctactgt	gtcttctgtg	tcacaaacag	cactccaggc	cagctcaaga									1207	
Thr	Asn	*															
383																	
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tgatgccttg tatttattga aagcttaa	1327
atg ggggtgggtgt ttctgcacat ac	
ctctgcag tacctcacca gggagcattc	1387
cagtatcatg cagggtcctg tgatctag	
cc aggagcagcc attaacctag tgat	
taatat gggagacatt accatatgga	1447
ggatggatgc ttcactttgt caagcac	
ctc agttacacat tcgccttttc tag	
gattgca tttcccaagt gctattgcaa	1507
taacagttga tactcatttt aggtacca	
aaa ccttttgagt tcaactgac aaac	
caaagg aaaagtgttg ctagagaaaa	1567
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ggt agtaattgag cagaaaaaaa tta	
atttata tatgtattga ttggcaacca	1627
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tag gaaaaagaa aaactgcatg tta	
atcattt tcctaagctg tccttttgag	1687
gcttagtcag tttattggga aaatgtt	
tag gattattcct tgctattagt actc	
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ga aaggattcct ttctacatta taca	
tgtgtg ttgtcatatt tggcttttgc	1807
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g ggttaagtacg caacttactt ttcca	
caaaa gaactgtcag cagctgcctg	1927
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	2215

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cggagaaacg tttctctttc ctctcagttt	
gcgcacacc atg gcg gcc cct gcc	114
Met Ala Ala Pro Ala	
1	
cag cag act act cag cct ggc ggc	
ggg aag cgc aaa ggc aag gct cag	162
Gln Gln Thr Thr Gln Pro Gly Gly	
Gly Gly Lys Arg Lys Gly Lys Ala	
Gln 6 11 16 21	
tat gtg ctg gcc aag cgc gct cgg	
cgc tgc gac gct ggc ggg ccc cgt	210
Tyr Val Leu Ala Lys Arg Ala Arg	
Arg Cys Asp Ala Gly Gly Pro Arg	

22	27	32	37	
cag cta gag ccc ggg	cta cag ggc atc ctc	atc acc tgc aat atg aac		258
Gln Leu Glu Pro Gly	Leu Gln Gly Ile Leu	Ile Thr Cys Asn Met Asn		
38	43	48	53	
gag cgc aag tgc gtg	gag gag gcc tac agc	ctc ctc aac gaa tac ggc		306
Glu Arg Lys Cys Val	Glu Glu Ala Tyr Ser	Leu Leu Asn Glu Tyr Gly		
54	59	64	69	
gac gac atg tat ggg	cca gaa aag ttt aca	gac aag gat cag cag ccc		354
Asp Asp Met Tyr Gly	Pro Glu Lys Phe Thr	Asp Lys Asp Gln Gln Pro		
70	75	80	85	
tct gga agt gag gga	gag gat gat gat gcg	gag gct gcc ttg aag aaa		402
Ser Gly Ser Glu Gly	Glu Asp Asp Asp Ala	Glu Ala Ala Leu Lys Lys		
86	91	96	101	
gaa gtt ggt gac att	aag gca tct aca gag	atg agg tta aga aga ttc		450
Glu Val Gly Asp Ile	Lys Ala Ser Thr Glu	Met Arg Leu Arg Arg Phe		
102	107	112	117	
cag tca gtg gaa agt	gga gca aat aac gtt	gtc ttc atc agg aca ctt		498
Gln Ser Val Glu Ser	Gly Ala Asn Asn Val	Val Phe Ile Arg Thr Leu		
118	123	128	133	
ggg ata gag cct gag	aaa ttg gtg cat cat	att ctc cag gat atg tac		546
Gly Ile Glu Pro Glu	Lys Leu Val His His	Ile Leu Gln Asp Met Tyr		
134	139	144	149	
aaa acc aag aaa aag	aag act cga gtt att	ttg cga atg tta ccc atc		594
Lys Thr Lys Lys Lys	Lys Thr Arg Val Ile	Leu Arg Met Leu Pro Ile		
150	155	160	165	
tca ggc aca tgc aag	gct ttt tta gaa gat	atg aaa aaa tat gca gaa		642
Ser Gly Thr Cys Lys	Ala Phe Leu Glu Asp	Met Lys Lys Tyr Ala Glu		
166	171	176	181	
aca ttt ttg gaa ccc	tgg ttt aaa gct cca	aac aaa ggg aca ttt cag		690
Thr Phe Leu Glu Pro	Trp Phe Lys Ala Pro	Asn Lys Gly Thr Phe Gln		
182	187	192	197	
att gtg tac aaa tct	cga aat aac agt cat	gtg aat aga gaa gaa gtt		738
Ile Val Tyr Lys Ser	Arg Asn Asn Ser His	Val Asn Arg Glu Glu Val		
198	203	208	213	
atc aga gaa ttg gca	gga ata gtg tgc acc	ctc aat tca gaa aat aaa		786
Ile Arg Glu Leu Ala	Gly Ile Val Cys Thr	Leu Asn Ser Glu Asn Lys		
214	219	224	229	
gtg gat ctc acc aat	cca cag tac aca gtg	gta gta gaa atc atc aaa		834
Val Asp Leu Thr Asn	Pro Gln Tyr Thr Val	Val Val Glu Ile Ile Lys		
230	235	240	245	
gct gtc tgt tgc ctg	agt gtt gtg aaa gat	tac atg ttg ttt aga aaa		882
Ala Val Cys Cys Leu	Ser Val Val Lys Asp	Tyr Met Leu Phe Arg Lys		
246	251	256	261	

tac aat ctc cag gag gtg gtg aag agc cct aag gat ccg tca cag ctt	930
Tyr Asn Leu Gln Glu Val Val Lys Ser Pro Lys Asp Pro Ser Gln Leu	
262 267 272 277	

aac tca aag cag gga aat ggg aaa gaa gct aaa ctg gaa tct gcg gac	978
Asn Ser Lys Gln Gly Asn Gly Lys Glu Ala Lys Leu Glu Ser Ala Asp	
278 283 288 293	

aaa tca gac caa aac aac aca gca gaa gga aaa aat aac cag cag gta	1026
Lys Ser Asp Gln Asn Asn Thr Ala Glu Gly Lys Asn Asn Gln Gln Val	
294 299 304 309	

cca gag aat act gag gag ctg ggg cag aca aaa cca acg tct aat cca	1074
Pro Glu Asn Thr Glu Glu Leu Gly Gln Thr Lys Pro Thr Ser Asn Pro	
310 315 320 325	

cag gtg gta aat gag gga gga gcc aaa cct gaa ctt gca agt caa gcc	1122
Gln Val Val Asn Glu Gly Gly Ala Lys Pro Glu Leu Ala Ser Gln Ala	
326 331 336 341	

aca gaa gga tcc aag tca aat gaa aat gac ttc tca tag gaagtcattt	1171
Thr Glu Gly Ser Lys Ser Asn Glu Asn Asp Phe Ser *	
342 347 352	

gggtgttgag ctgacagtcc agtgtcgcaa ttttgaagg caagatgtga gagagacgag	1231
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aaccatttta ggcataagaac tacagacatt tctgaaaagg ttggtgatga agaacttcag	1291
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Met	
1	

agg gca gac gag atc aaa gat gcc atc tac gtg acc atg gag atc ctg	166
Arg Ala Asp Glu Ile Lys Asp Ala Ile Tyr Val Thr Met Glu Ile Leu	
2 7 12 17	

tcc aac tgg ggc aac tcg tgg tgg gtg ggt ctc aca gaa gtc gag ttc	214
Ser Asn Trp Gly Asn Ser Trp Trp Val Gly Leu Thr Glu Val Glu Phe	
18 23 28 33	

ttt gac ttg aat gac aca aag ctt tat gtg tgc ccc cac gat gtg gat	262
Phe Asp Leu Asn Asp Thr Lys Leu Tyr Val Ser Pro His Asp Val Asp	
34 39 44 49	
atc cgg aac aca gcc acg cct ggg gag ctg ggc cgc ctc gtc aac agg	310
Ile Arg Asn Thr Ala Thr Pro Gly Glu Leu Gly Arg Leu Val Asn Arg	
50 55 60 65	
aac tta gct ggc aag aaa gac tcc tcc ccg tgg acc tgc ccc ttc cac	358
Asn Leu Ala Gly Lys Lys Asp Ser Ser Pro Trp Thr Cys Pro Phe His	
66 71 76 81	
cca cca ctc cag ctg ttt ttt gtt att cga aac aca aga cag ctg ggg	406
Pro Pro Leu Gln Leu Phe Phe Val Ile Arg Asn Thr Arg Gln Leu Gly	
82 87 92 97	
gac ttc cat ctg gcc aag atc aag gtt cgg aat tac tgg aca gct gat	454
Asp Phe His Leu Ala Lys Ile Lys Val Arg Asn Tyr Trp Thr Ala Asp	
98 103 108 113	
ggc gat ctt gac att ggt gcc aag aac gtg aag ctt tac gtc aac aga	502
Gly Asp Leu Asp Ile Gly Ala Lys Asn Val Lys Leu Tyr Val Asn Arg	
114 119 124 129	
aac ctc atc ttc aat ggc aag tta gac aaa gga gat agg gag gcc cca	550
Asn Leu Ile Phe Asn Gly Lys Leu Asp Lys Gly Asp Arg Glu Ala Pro	
130 135 140 145	
gct gac cac agc atc ctg gtt gac cag aag aac gag aag agc gag caa	598
Ala Asp His Ser Ile Leu Val Asp Gln Lys Asn Glu Lys Ser Glu Gln	
146 151 156 161	
cta gag gag gcc atg aac gct cac tcg gaa gaa agc aaa ggc acc cat	646
Leu Glu Glu Ala Met Asn Ala His Ser Glu Glu Ser Lys Gly Thr His	
162 167 172 177	
gag atg gct ggt gcc agc ggg gac aag gag ctt ggt ctc ggt tgc tca	694
Glu Met Ala Gly Ala Ser Gly Asp Lys Glu Leu Gly Leu Gly Cys Ser	
178 183 188 193	
ccg cca gct gaa aca tta gcg gat gca aag ctt tct tca caa gga aat	742
Pro Pro Ala Glu Thr Leu Ala Asp Ala Lys Leu Ser Ser Gln Gly Asn	
194 199 204 209	
gtg tct ggc aaa aga aag aat tct act aat tgc agg aaa gac agt ttg	790
Val Ser Gly Lys Arg Lys Asn Ser Thr Asn Cys Arg Lys Asp Ser Leu	
210 215 220 225	
tcc cag tta gag gaa tat ttg aga ctg tcg gca gtc ccc act tcg atg	838
Ser Gln Leu Glu Glu Tyr Leu Arg Leu Ser Ala Val Pro Thr Ser Met	
226 231 236 241	
ggt gac atg ccc agt gct cct gcc act tcc cca cct gtg aag tgc cct	886
Gly Asp Met Pro Ser Ala Pro Ala Thr Ser Pro Pro Val Lys Cys Pro	
242 247 252 257	

cct Pro 258	gtc Val	cat His	gag Glu	gag Glu	ccc Pro 263	tct Ser	ctc Leu	atc Ile	caa Gln 268	caa Gln	ctg Leu	gaa Glu	aac Asn	ctc Leu	atg Met 273	934
ggc Gly 274	aga Arg	aaa Lys	atc Ile	tgt Cys	gag Glu 279	cca Pro	ccc Pro	ggg Gly	aaa Lys 284	acc Thr	cca Pro	tcc Ser	tgg Trp	tta Leu	caa Gln 289	982
cct Pro 290	tct Ser	ccc Pro	acc Thr	ggc Gly	aag Lys 295	gac Asp	agg Arg	aag Lys	cag Gln 300	gga Gly	ggc Gly	agg Arg	aag Lys	cca Pro	aaa Lys 305	1030
ccc Pro 306	ctc Leu	tgg Trp	ctt Leu	agt Ser	ccc Pro 311	gag Glu	aag Lys	ccc Pro	ctg Leu	gcc Ala 316	tgg Trp	aag Lys	ggc Gly	agg Arg	ctc Leu 321	1078
cca Pro 322	tca Ser	gac Asp	gat Asp	gtc Val	atc Ile 327	ggt Gly	gag Glu	ggt Gly	cct Pro 332	gga Gly	gag Glu	acc Thr	gag Glu	gcc Ala	agg Arg 337	1126
gat Asp 338	aaa Lys	ggc Gly	cta Leu	cgg Arg	cat His 343	gag Glu	cca Pro	ggg Gly	tgg Trp	ggg Gly 348	acc Thr	agc Ser	cgg Arg	agt Ser	gtc Val 353	1174
aac Asn 354	acc Thr	aag Lys	gag Glu	aga Arg	ccc Pro 359	cag Gln	agg Arg	gca Ala	acc Thr 364	acc Thr	aaa Lys	gtc Val	cac His	agt Ser	gat Asp 369	1222
gac Asp 370	tca Ser	gac Asp	atc Ile	ttt Phe	aac Asn 375	cag Gln	ccc Pro	ccc Pro	aac Asn	aga Arg 380	gag Glu	cgc Arg	cct Pro	gct Ala	agt Ser 385	1270
ggg Gly 386	agg Arg	agg Arg	ggc Gly	tca Ser	agg Arg 391	aag Lys	gat Asp	gct Ala	ggc Gly 396	agc Ser	agt Ser	agt Ser	cat His	ggg Gly	gac Asp 401	1318
gac Asp 402	cag Gln	cca Pro	gcc Ala	agc Ser	aga Arg 407	gaa Glu	gac Asp	acc Thr	tgg Trp 412	tct Ser	tcc Ser	agg Arg	acg Thr	ccg Pro	tca Ser 417	1366
cgg Arg 418	tca Ser	agg Arg	tgg Trp	cgc Arg	agt Ser 423	gag Glu	cag Gln	gag Glu	cac His 428	aca Thr	ctt Leu	cac His	gag Glu	tca Ser	tgg Trp 433	1414
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agc Ser 466	cgg Arg	cac His	agc Ser	gac Asp	ttg Leu 471	ccc Pro	ccc Pro	tcc Ser	aag Lys 476	aag Lys	ggg Gly	gag Glu	cag Gln	cca Pro	ggg Gly 481	1558
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Leu Ser Arg Gly Gln Asp Gly Tyr Ser Gly Glu Thr Asp Ala Gly Gly	
482 487 492 497	
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Asp Phe Lys Ile Pro Val Leu Pro Tyr Gly Gln Arg Leu Val Ile Asp	
498 503 508 513	
atc aag tct acc tgg ggg gac aga cac tat gtc ggc ctc aac gga ata	1702
Ile Lys Ser Thr Trp Gly Asp Arg His Tyr Val Gly Leu Asn Gly Ile	
514 519 524 529	
gaa ata ttc agt tcc aag ggt gaa ccg gtg cag att tca aac ata aaa	1750
Glu Ile Phe Ser Ser Lys Gly Glu Pro Val Gln Ile Ser Asn Ile Lys	
530 535 540 545	
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Ala Asp Pro Pro Asp Ile Asn Ile Leu Pro Ala Tyr Gly Lys Asp Pro	
546 551 556 561	
cgc gtg gtc acc aac ctc atc gac ggg gtg aac agg acc cag gat gac	1846
Arg Val Val Thr Asn Leu Ile Asp Gly Val Asn Arg Thr Gln Asp Asp	
562 567 572 577	
atg cat gtc tgg ctg gcc ccc ttc acg cgg ggc aga tcc cac tcc atc	1894
Met His Val Trp Leu Ala Pro Phe Thr Arg Gly Arg Ser His Ser Ile	
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acc att gac ttc acg cac cct tgc cac gtt gcc ctg atc aga att tgg	1942
Thr Ile Asp Phe Thr His Pro Cys His Val Ala Leu Ile Arg Ile Trp	
594 599 604 609	
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Asn Tyr Asn Lys Ser Arg Ile His Ser Phe Arg Gly Val Lys Asp Ile	
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aca atg ctg tta gac acc cag tgc atc ttt gaa gga gaa atc gcc aag	2038
Thr Met Leu Leu Asp Thr Gln Cys Ile Phe Glu Gly Glu Ile Ala Lys	
626 631 636 641	
gcc tct gga acc ctg gcg gga gcc cca gag cac ttt gga gac acg atc	2086
Ala Ser Gly Thr Leu Ala Gly Ala Pro Glu His Phe Gly Asp Thr Ile	
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Leu Phe Thr Thr Asp Asp Asp Ile Leu Glu Ala Ile Phe Tyr Ser Asp	
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Gly Asp Leu His Tyr	Leu Gly Leu Thr Gly	Leu Glu Val Val Gly Lys					
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Glu Gly Gln Ala Leu	Pro Ile His Leu His	Gln Ile Ser Ala Ser Pro					
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aga gac tta aat gag	ctc ccc gag tac tct	gac gac tcc cgg acc ctg	2518				
Arg Asp Leu Asn Glu	Leu Pro Glu Tyr Ser	Asp Asp Ser Arg Thr Leu					
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gac aag tta att gat	ggc acc aac atc acc	atg gag gat gag cat atg	2566				
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802	807	812	817				
tgg ctg atc ccc ttc	tgc ccg ggg ctg gac	cat gtg gtc acg atc cgc	2614				
Trp Leu Ile Pro Phe	Ser Pro Gly Leu Asp	His Val Val Thr Ile Arg					
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ctg gac agg gcc gaa	agc atc gca ggc ctg	cgc ttc tgg aac tac aat	2662				
Leu Asp Arg Ala Glu	Ser Ile Ala Gly Leu	Arg Phe Trp Asn Tyr Asn					
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Lys Ser Pro Glu Asp	Thr Tyr Arg Gly Ala	Lys Ile Val His Val Ser					
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ccc tgt ggc ttc att	ttc cag ttt cag ctt	ctc acc agc tgg ggc gac	2950				
Pro Cys Gly Phe Ile	Phe Gln Phe Gln Leu	Leu Thr Ser Trp Gly Asp					
930	935	940	945				



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 Met Ala Ala Thr Leu Asp Leu Lys Ser Lys Glu Glu Lys  
 1 5 10  
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 Asp Ala Glu Leu Asp Lys Arg Ile Glu Ala Leu Arg Arg Lys Asn Glu  
 14 19 24 29  
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 Ala Leu Ile Arg Arg Tyr Gln Glu Ile Glu Glu Asp Arg Lys Lys Ala  
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 Glu Leu Glu Gly Val Ala Val Thr Ala Pro Arg Lys Gly Arg Ser Val  
 46 51 56 61  
 gag aag gag aac gtg gca gtg gag tcg gag aag aac ctg ggt cct tcc 361  
 Glu Lys Glu Asn Val Ala Val Glu Ser Glu Lys Asn Leu Gly Pro Ser  
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 Arg Arg Ser Pro Gly Thr Pro Arg Pro Pro Gly Ala Ser Lys Gly Gly  
 78 83 88 93  
 cgg act cct cca cag cag gga ggc cgg gcc ggc atg ggc cga gca tcg 457  
 Arg Thr Pro Pro Gln Gln Gly Gly Arg Ala Gly Met Gly Arg Ala Ser  
 94 99 104 109  
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 Arg Ser Trp Glu Gly Ser Pro Gly Glu Gln Pro Arg Gly Gly Gly Ala  
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 Gly Gly Arg Gly Arg Arg Gly Arg Gly Arg Gly Ser Pro His Leu Ser  
 126 131 136 141  
 gga gct gga gac acc tca atc tct gac cgt aaa tcc aag gag tgg gag 601  
 Gly Ala Gly Asp Thr Ser Ile Ser Asp Arg Lys Ser Lys Glu Trp Glu  
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 Glu Arg Arg Arg Gln Asn Ile Glu Lys Met Asn Glu Glu Met Glu Lys  
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Ile Ala Glu Tyr Glu Arg Asn Gln Arg Glu Gly Val Leu Glu Pro Asn	
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Glu Glu Ser Glu Arg Asp Arg Arg Glu Glu Ser Arg Arg His Gly Arg	
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Asn Trp Gly Gly Pro Asp Phe Glu Arg Val Arg Cys Gly Leu Glu His	
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Glu Arg Gln Gly Arg Arg Ala Gly Leu Gly Ser Ala Gly Asp Met Thr	
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Leu Ser Met Thr Gly Arg Glu Arg Ser Glu Tyr Leu Arg Trp Lys Gln	
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Glu Arg Glu Lys Ile Asp Gln Glu Arg Leu Gln Arg His Arg Lys Pro	
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Thr Gly Gln Trp Arg Arg Glu Trp Asp Ala Glu Lys Thr Asp Gly Met	
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Phe Lys Asp Gly Pro Val Pro Ala His Glu Pro Ser His Arg Tyr Asp	
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Asp Gln Ala Trp Ala Arg Pro Pro Lys Pro Pro Thr Phe Gly Glu Phe	
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Leu Ser Gln His Lys Ala Glu Ala Ser Ser Arg Arg Arg Arg Lys Ser	
334 339 344 349	
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Ser Arg Pro Gln Ala Lys Ala Ala Pro Arg Ala Tyr Ser Asp His Asp	
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gac cgc tgg gag aca aaa gaa ggg gca gca tcc cca gcc cct gag act	1273
Asp Arg Trp Glu Thr Lys Glu Gly Ala Ala Ser Pro Ala Pro Glu Thr	
366 371 376 381	
cca cag cct act tcc ccc gag act tcc ccc aag gag aca ccc atg cag	1321
Pro Gln Pro Thr Ser Pro Glu Thr Ser Pro Lys Glu Thr Pro Met Gln	
382 387 392 397	

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Pro Pro Glu Ile Pro Ala Pro Ala His Arg Pro Pro Glu Asp Glu Gly	
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Glu Glu Asn Glu Gly Glu Glu Asp Glu Glu Trp Glu Asp Ile Ser Glu	
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Cys Ser Glu Gln Ala His Gly Val Pro Phe Ser Pro Glu Glu Pro Leu	
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Leu Glu Pro Gln Ala Pro Gly Thr Pro Ser Ser Pro Phe Ser Pro Pro	
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Ser Gly His Gln Pro Val Ser Asp Trp Gly Glu Glu Val Glu Leu Asn	
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Ser Pro Arg Thr Thr His Leu Ala Gly Ala Leu Ser Pro Gly Glu Ala	
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Val Asp Ile Ala Glu Gly Arg Lys Gln Asp Lys Gly Gly Phe Gly Phe	
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145	150	155	160	
gac ttc tta ggg ggc agg gga ggt agt cgc cca ggc gac cgg cga aca				648
Asp Phe Leu Gly Gly Arg Gly Gly Ser Arg Pro Gly Asp Arg Arg Thr				
161	166	171	176	
ggc ccc ccc atg ggc agc cgc ttc aga gat ggc cct ccc ctc cgt gga				696
Gly Pro Pro Met Gly Ser Arg Phe Arg Asp Gly Pro Pro Leu Arg Gly				
177	182	187	192	
tcc aac atg gat ttc aga gaa ccc aca gaa gag gaa aga gca cag aga				744
Ser Asn Met Asp Phe Arg Glu Pro Thr Glu Glu Glu Arg Ala Gln Arg				
193	198	203	208	
cca cga ctc cag ctt aaa cct cga aca gtc gcg acg ccc ctc aat caa				792
Pro Arg Leu Gln Leu Lys Pro Arg Thr Val Ala Thr Pro Leu Asn Gln				
209	214	219	224	
gta gcc aat ccc aac tct gct atc ttc ggg ggt gcc agg cct aga gag				840
Val Ala Asn Pro Asn Ser Ala Ile Phe Gly Gly Ala Arg Pro Arg Glu				
225	230	235	240	
gaa gtc gtt caa aag gag caa gaa tga gcctg cgggtgggag ggaatggggc				892
Glu Val Val Gln Lys Glu Gln Glu *				
241	246			
gtgggggggtt agagcaggac cacagcctgg tgagtccccg ggcagccgtc ctgcagccgc				952
cactcctgcg cctgccattg gcctcctcac agcggaaca cagcttgtga gtgcatgtca				1012
gctgttaaca agtggttttt agtacattct gggctttgct gtatctatct agtgccctgtt				1072
tgtgcgtttt tttctttctt ccgctgcttc cccattttcc ttctgtcctt tttctcctgc				1132
tccttgttt cccagcagca catgggggttc ctggaggag cagaggtggc cgccgtgggg				1192
gggcgttttg gctgcggtgc tgcgtcattt ttcttttgc ttctctttac tttagacact				1252
ggcccaactc caggcgtttc ctttcattcc ctgagtgtt ctctcttgac ctgcatgttg				1312
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gaccttggtg gtattcagct gtgatggata tagagaatca gaggcacctt gttttcacia				1432
ctaggataaa aatatctgca gggctctttc cattcctatt tagagggagt cctggctcca				1492
tgacccccctc ccgagtggac tgtccaagca gataggtca cacgagaaac agtgaggctg				1552
aaaggggggg ctatggaaga gcggtaggga gtccacggag aagatgcagt gaatgcttgc				1612

atgcattcac	acgtgtgtgt	gtcccagcta	gttcaactcct	ttcgccgtgc	gtggtggagg	1672
ctggcctctc	tggctgggtg	cagtgaatgg	ccagcgggtt	tcttttctgc	tgggccaaagg	1732
cgttttgggg	gtggaggggg	tgggtgctgg	gctgcaactgg	gctgactgcg	gcgctgacgc	1792
agcgtttccc	cccatccctg	ttgcctgtgt	gttgtgtgga	tctgttccta	gtataggcaa	1852
cataatgaga	tactgtgctt	cccacctccc	cttcagttca	gagccaaaat	gggtctagaa	1912
tctggcactt	tactcatttc	ctttgataaa	ttgtactatg	cagagctgtc	aggaaccttc	1972
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cttgaacgcc	tgcgtgtgaa	cagatgaaaa	atccttcagt	acccaagtcc	cagtctgtcc	2152
tatggggagc	agtttggggg	cggccggcag	caggagcctg	ggaaagaggc	cctcgccagg	2212
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aactgctggg	caatccagtt	gactttttaa	tgtagaatg	gaattccaaa	cacttaacac	2572
attcagctat	atgacagaaa	gtaaatctat	ggatatggta	ttttgtgaat	gatcttttaa	2632
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<210> 270  
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 <212> DNA  
 <213> Homo sapiens

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gcgtacgtaa	gcttggatcc tctagagcgg ccgcctacta ctactaaatt cggggccgggt 120
cgactttttt	tttttttttt aattcttcag ctaaaacagc ggaagagggtg atttattata 180
tggttgttac	actcggccac aaataaacac agaaatagtc cagaatgtca cagggtccagg 240

gcagaggacc aacatgggca ttttgtttat gagcaagggtg ggtctcagag gtgatcggcg 300

atcagagggc gatgaagttc tagatccatt gagacaagct ctagacagta gcatgcagtc 360

ccacaacttg taccagcatc cccagcgtct ggcattcc atg ttt ctg ctc ctg 413  
Met Phe Leu Leu Leu  
1

tgg cct cca cgg tgc aac aag cta gcg gtt tac ttg gac ctc tgc ctc 461  
Trp Pro Pro Arg Cys Asn Lys Leu Ala Val Tyr Leu Asp Leu Cys Leu  
6 11 16 21

atc ttt ctt ctt ttg cgc ttc agc ctg cgc att cgc ttc ttc ctc cac 509  
Ile Phe Leu Leu Leu Arg Phe Ser Leu Arg Ile Arg Phe Phe Leu His  
22 27 32 37

ttg gct ctc atg gcg cag agg ttt cca aaa aaa tgg cgc tac cca cgc 557  
Leu Ala Leu Met Ala Gln Arg Phe Pro Lys Lys Trp Arg Tyr Pro Arg  
38 43 48 53

gtc cgc cca cgc gtc cgc gga cgc gtg ggt ttt ttt gga aac ctc tgc 605  
Val Arg Pro Arg Val Arg Gly Arg Val Gly Phe Phe Gly Asn Leu Cys  
54 59 64 69

gcc atg aga gcc aag tgg agg aag aag cga atg cgc agg ctg aag cgc 653  
Ala Met Arg Ala Lys Trp Arg Lys Lys Arg Met Arg Arg Leu Lys Arg  
70 75 80 85

aaa aga aga aag atg agg cag agg tcc aag taa accgctag cttgttgcac 704  
Lys Arg Arg Lys Met Arg Gln Arg Ser Lys \*  
86 91 96

cgtggaggcc acaggagcag aaacatggaa tgccagacgc tggggatgct ggtacaagtt 764

gtgggactgc atgctactgt ctagagcttg tctcaatgga tctagaactt catcgccctc 824

tgatcgccga tcacctctga gaccacatt gtcataaac aaaatgccca tgttggtcct 884

ctgccctgga cctgtgacat tctggactat ttctgtgttt atttgtggcc gagtgttaaca 944

accatataat aaatcacctc ttccgctggt ttagctgaag aattaaaaaa aaaaaaaa 1002

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<213> Homo sapiens

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<222> (187) .. (1236)

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atccactagt ccagtgtggt ggaattccct ccgccacatc ctccacctct cttggtccag	120
cgagcgttgc cgggccaggg tcaagcggag ggctccgacg gcgcggacgg agcgaagcgc	180
cgagcc atg gcg cac caa acg ggc atc cac gcc acg gaa gag ctg aag	228
Met Ala His Gln Thr Gly Ile His Ala Thr Glu Glu Leu Lys	
1 5 10	
gaa ttc ttt gcc aag gca cgg gct ggc tct gtg cgg ctc atc aag gtt	276
Glu Phe Phe Ala Lys Ala Arg Ala Gly Ser Val Arg Leu Ile Lys Val	
15 20 25 30	
gtg att gag gac gag cag ctc gtg ctg ggt gcc tcg cag gag cca gta	324
Val Ile Glu Asp Glu Gln Leu Val Leu Gly Ala Ser Gln Glu Pro Val	
31 36 41 46	
ggc cgc tgg gat cag gac tat gac agg gcc gtg ctg cca ctg ctg gac	372
Gly Arg Trp Asp Gln Asp Tyr Asp Arg Ala Val Leu Pro Leu Leu Asp	
47 52 57 62	
gcc cag cag ccc tgc tac ctg ctc tac cgc ctc gac tca cag aat gct	420
Ala Gln Gln Pro Cys Tyr Leu Leu Tyr Arg Leu Asp Ser Gln Asn Ala	
63 68 73 78	
cag ggc ttc gaa tgg ctc ttc ctc gcc tgg tcg cct gat aac tcc ccc	468
Gln Gly Phe Glu Trp Leu Phe Leu Ala Trp Ser Pro Asp Asn Ser Pro	
79 84 89 94	
gtg cgg ctg aag atg ctg tac gcg gcc acg cgg gcc aca gtg aaa aag	516
Val Arg Leu Lys Met Leu Tyr Ala Ala Thr Arg Ala Thr Val Lys Lys	
95 100 105 110	
gag ttt gga ggt ggc cac atc aag gat gag ctc ttc ggg act gtg aag	564
Glu Phe Gly Gly Gly His Ile Lys Asp Glu Leu Phe Gly Thr Val Lys	
111 116 121 126	
gat gac ctc tct ttt gct ggg tac cag aaa cac ctg tcg tcc tgt gcg	612
Asp Asp Leu Ser Phe Ala Gly Tyr Gln Lys His Leu Ser Ser Cys Ala	
127 132 137 142	
gca cct gcc ccg ctg acc tcg gct gag aga gag ctc cag cag atc cgc	660
Ala Pro Ala Pro Leu Thr Ser Ala Glu Arg Glu Leu Gln Gln Ile Arg	
143 148 153 158	
att aac gag gtg aag aca gag atc agt gtg gaa agc aag cac cag acc	708
Ile Asn Glu Val Lys Thr Glu Ile Ser Val Glu Ser Lys His Gln Thr	
159 164 169 174	
ctg cag ggc ctc gcc ttc ccc ctg cag cct gag gcc cag cgg gca ctc	756
Leu Gln Gly Leu Ala Phe Pro Leu Gln Pro Glu Ala Gln Arg Ala Leu	
175 180 185 190	
cag cag ctc aag cag aaa atg gtc aac tac atc cag atg aag ctg gac	804
Gln Gln Leu Lys Gln Lys Met Val Asn Tyr Ile Gln Met Lys Leu Asp	
191 196 201 206	

cta gag cgg gaa acc att gag ctg gtg cac aca gag ccc acg gat gtg	852
Leu Glu Arg Glu Thr Ile Glu Leu Val His Thr Glu Pro Thr Asp Val	
207 212 217 222	
gcc cag ctg ccc tcc cgg gtg ccc cga gat gct gcc cgc tac cac ttc	900
Ala Gln Leu Pro Ser Arg Val Pro Arg Asp Ala Ala Arg Tyr His Phe	
223 228 233 238	
ttc ctc tac aag cac acc cat gag ggc gac ccc ctt gag tct gta gtg	948
Phe Leu Tyr Lys His Thr His Glu Gly Asp Pro Leu Glu Ser Val Val	
239 244 249 254	
ttc atc tac tcc atg ccg ggg tac aag tgc agc atc aag gag cga atg	996
Phe Ile Tyr Ser Met Pro Gly Tyr Lys Cys Ser Ile Lys Glu Arg Met	
255 260 265 270	
ctc tac tcc agc tgc aag agc cgc ctc ctc gac tcc gtg gag cag gac	1044
Leu Tyr Ser Ser Cys Lys Ser Arg Leu Leu Asp Ser Val Glu Gln Asp	
271 276 281 286	
ttc cat ctg gag atc gcc aag aaa att gag att ggc gat ggg gca gag	1092
Phe His Leu Glu Ile Ala Lys Lys Ile Glu Ile Gly Asp Gly Ala Glu	
287 292 297 302	
ctg acg gca gag ttc ctc tac gac gag gtg cac ccc aag caa cac gcc	1140
Leu Thr Ala Glu Phe Leu Tyr Asp Glu Val His Pro Lys Gln His Ala	
303 308 313 318	
ttc aag cag gcc ttc gcc aag ccc aag ggc cca ggg ggc aag cgg ggc	1188
Phe Lys Gln Ala Phe Ala Lys Pro Lys Gly Pro Gly Gly Lys Arg Gly	
319 324 329 334	
cat aag cgc ctc atc cgc ggc ccg ggt gaa aat ggg gat gac agc tag	1236
His Lys Arg Leu Ile Arg Gly Pro Gly Glu Asn Gly Asp Asp Ser *	
335 340 345 350	
gaggctggag cagggccggc cacgtgtgga ctgtggggct gcccaccttc cgctccctgc	1296
caccatcctc cttcctgggc tccaggaaag tgtttctggg aggtcaggag ggctggcagc	1356
tgaacgcact tgcagcgtcc gagggccacc gggctggcat tttgtgaccc ttccctgttg	1416
ctgtccctgc atctcgtctg tgtgcccagg gtgtccgggg accctgctg gctggcttaa	1476
gggggctggg tcaggggcct ggcataaacc tggcctcccg gggagctgag actagggctc	1536
cagcacagcc cagaaacctt tggccacaag aagtggggct agtcagggtc ggggcagggg	1596
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aaaaaaaaaa aa	1668

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<211> 2000

<212> DNA  
<213> Homo sapiens

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<222> (82)..(1872)

<220>  
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ccgaacccgg gagctggcgc c atg gtg ctg ttg cac gtg ctg ttt gag cac 111  
Met Val Leu Leu His Val Leu Phe Glu His  
1 5  
  
gcg gtc ggc tac gcg ctg ctg gcg ctg aag gaa gtg gag gag atc agt 159  
Ala Val Gly Tyr Ala Leu Leu Ala Leu Lys Glu Val Glu Glu Ile Ser  
11 16 21 26  
  
ctg ctg cag ccg cag gtg gag gag tcc gtg ctc aac ctg ggc aaa ttc 207  
Leu Leu Gln Pro Gln Val Glu Glu Ser Val Leu Asn Leu Gly Lys Phe  
27 32 37 42  
  
cac agc atc gtt cgt ctg gtg gcc ttt tgt ccc ttt gcc tca tcc cag 255  
His Ser Ile Val Arg Leu Val Ala Phe Cys Pro Phe Ala Ser Ser Gln  
43 48 53 58  
  
gtt gcc ttg gaa aat gcc aac gcc gtg tct gaa ggg gtt gtt cat gag 303  
Val Ala Leu Glu Asn Ala Asn Ala Val Ser Glu Gly Val Val His Glu  
59 64 69 74  
  
gac ctc cgc ctg ctc ttg gag acc cac ctg ccg tcc aaa aag aag aaa 351  
Asp Leu Arg Leu Leu Leu Glu Thr His Leu Pro Ser Lys Lys Lys Lys  
75 80 85 90  
  
gta ctc ttg gga gtt ggg gat ccc aag att ggt gcc gca ata cag gag 399  
Val Leu Leu Gly Val Gly Asp Pro Lys Ile Gly Ala Ala Ile Gln Glu  
91 96 101 106  
  
gag tta ggg tac aac tgc cag act gga gga gtc ata gct gag atc ctg 447  
Glu Leu Gly Tyr Asn Cys Gln Thr Gly Gly Val Ile Ala Glu Ile Leu  
107 112 117 122  
  
cga gga gtt cgt ctg cac ttc cac aat ctg gtg aag ggt ctg acc gat 495  
Arg Gly Val Arg Leu His Phe His Asn Leu Val Lys Gly Leu Thr Asp  
123 128 133 138  
  
ctg tca gct tgt aaa gca cag ctg ggg ctg gga cac agc tat tcc cgt 543  
Leu Ser Ala Cys Lys Ala Gln Leu Gly Leu Gly His Ser Tyr Ser Arg  
139 144 149 154  
  
gcc aaa gtt aag ttt aat gtg aac cgg gtg gac aat atg atc atc cag 591  
Ala Lys Val Lys Phe Asn Val Asn Arg Val Asp Asn Met Ile Ile Gln

155	160	165	170	
tcc att agc ctc ctg	gac cag ctg gat aag	gac atc aat acc ttc	tct	639
Ser Ile Ser Leu Leu	Asp Gln Leu Asp Lys	Asp Ile Asn Thr Phe	Ser	
171	176	181	186	
atg cgt gtc agg gag	tgg tac ggg tat cac	ttt ccg gag ctg gtg	aag	687
Met Arg Val Arg Glu	Trp Tyr Gly Tyr His	Phe Pro Glu Leu Val	Lys	
187	192	197	202	
atc atc aac gac aat	gcc aca tac tgc cgt	ctt gcc cag ttt att	gga	735
Ile Ile Asn Asp Asn	Ala Thr Tyr Cys Arg	Leu Ala Gln Phe Ile	Gly	
203	208	213	218	
aac cga agg gaa ctg	aat gag gac aag ctg	gag aag ctg gag gag	ctg	783
Asn Arg Arg Glu Leu	Asn Glu Asp Lys Leu	Glu Lys Leu Glu Glu	Leu	
219	224	229	234	
aca atg gat ggg gcc	aag gct aag gct att	ctg gat gcc tca cgg	tcc	831
Thr Met Asp Gly Ala	Lys Ala Lys Ala Ile	Leu Asp Ala Ser Arg	Ser	
235	240	245	250	
tcc atg ggc atg gac	ata tct gcc att gac	ttg ata aac atc gag	agc	879
Ser Met Gly Met Asp	Ile Ser Ala Ile Asp	Leu Ile Asn Ile Glu	Ser	
251	256	261	266	
ttc tcc agt cgt gtg	gtg tct tta tct gaa	tac cgc cag agc cta	cac	927
Phe Ser Ser Arg Val	Val Ser Leu Ser Glu	Tyr Arg Gln Ser Leu	His	
267	272	277	282	
act tac ctg cgc tcc	aag atg agc caa gta	gcc ccc agc ctg tca	gcc	975
Thr Tyr Leu Arg Ser	Lys Met Ser Gln Val	Ala Pro Ser Leu Ser	Ala	
283	288	293	298	
cta att ggg gaa gcg	gta ggt gca cgt ctc	atc gca cat gct ggc	agc	1023
Leu Ile Gly Glu Ala	Val Gly Ala Arg Leu	Ile Ala His Ala Gly	Ser	
299	304	309	314	
ctc acc aac ctg gcc	aag tat cca gca tcc	aca gtg cag atc ctt	ggg	1071
Leu Thr Asn Leu Ala	Lys Tyr Pro Ala Ser	Thr Val Gln Ile Leu	Gly	
315	320	325	330	
gct gaa aag gcc ctg	ttc aga gcc ctg aag	aca agg ggt aac act	cca	1119
Ala Glu Lys Ala Leu	Phe Arg Ala Leu Lys	Thr Arg Gly Asn Thr	Pro	
331	336	341	346	
aaa tat gga ctc att	ttc cac tcc acc ttc	att ggc cga gca gct	gcc	1167
Lys Tyr Gly Leu Ile	Phe His Ser Thr Phe	Ile Gly Arg Ala Ala	Ala	
347	352	357	362	
aag aac aaa ggc cgc	atc tcc cga tac ctg	gca aac aaa tgc agt	att	1215
Lys Asn Lys Gly Arg	Ile Ser Arg Tyr Leu	Ala Asn Lys Cys Ser	Ile	
363	368	373	378	
gcc tca cga atc gat	tgc ttc tct gag gtg	ccc acg agt gta ttc	ggg	1263
Ala Ser Arg Ile Asp	Cys Phe Ser Glu Val	Pro Thr Ser Val Phe	Gly	
379	384	389	394	

gag aag ctt cga gaa caa gtt gaa gag cga ctg tcc ttc tat gag act	1311
Glu Lys Leu Arg Glu Gln Val Glu Glu Arg Leu Ser Phe Tyr Glu Thr	
395 400 405 410	
gga gag ata cca cga aag aat ctg gat gtc atg aag gaa gca atg gtt	1359
Gly Glu Ile Pro Arg Lys Asn Leu Asp Val Met Lys Glu Ala Met Val	
411 416 421 426	
cag gca gag gca gag gaa gcg gct gct gag att act agg aag ctg gag	1407
Gln Ala Glu Ala Glu Glu Ala Ala Glu Ile Thr Arg Lys Leu Glu	
427 432 437 442	
aaa cag gag aag aaa cgc tta aag aag gaa aag aaa cgg ctg gct gca	1455
Lys Gln Glu Lys Lys Arg Leu Lys Lys Glu Lys Lys Arg Leu Ala Ala	
443 448 453 458	
ctt gcc ctc gcg tct tca gaa aac agc agt agt act cca gag gag tgt	1503
Leu Ala Leu Ala Ser Ser Glu Asn Ser Ser Ser Thr Pro Glu Glu Cys	
459 464 469 474	
gag gag atg agt gaa aaa ccc aaa aag aag aaa aag caa aag ccc cag	1551
Glu Glu Met Ser Glu Lys Pro Lys Lys Lys Lys Lys Gln Lys Pro Gln	
475 480 485 490	
gag gtt cct cag gag aat gga atg gaa gac cca tct atc tct ttc tcc	1599
Glu Val Pro Gln Glu Asn Gly Met Glu Asp Pro Ser Ile Ser Phe Ser	
491 496 501 506	
aaa ccc aag aaa aag aaa tct ttt tcc aag gag gag ttg atg agt agc	1647
Lys Pro Lys Lys Lys Lys Ser Phe Ser Lys Glu Glu Leu Met Ser Ser	
507 512 517 522	
gat ctt gaa gag acc gct ggc agc acc agt att ccc aag agg aag aag	1695
Asp Leu Glu Glu Thr Ala Gly Ser Thr Ser Ile Pro Lys Arg Lys Lys	
523 528 533 538	
tct aca ccc aag gag gaa aca gtt aat gac cct gag gag gca ggc cac	1743
Ser Thr Pro Lys Glu Glu Thr Val Asn Asp Pro Glu Glu Ala Gly His	
539 544 549 554	
aga agt ggc tcc aag aaa aag agg aaa ttc tcc aaa gag gag ccg gtc	1791
Arg Ser Gly Ser Lys Lys Lys Arg Lys Phe Ser Lys Glu Glu Pro Val	
555 560 565 570	
agc agt ggg cct gaa gag gcg gct ggc aag agc agc tcc aag aag aag	1839
Ser Ser Gly Pro Glu Glu Ala Ala Gly Lys Ser Ser Ser Lys Lys Lys	
571 576 581 586	
aaa aag ttc cat aaa gca tcc cag gaa gat tag aatgcaaa tggacattct	1890
Lys Lys Phe His Lys Ala Ser Gln Glu Asp *	
587 592 597	
ctggggaggtg gggcatacca tagcccaagg tgacatttcc caccctgtgc cgtgttcccc	1950
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (339) .. (2036)

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 ctgctcccca ctttcgttga tgtggtagtg gtgatgactg agccaaccac ctaatgtgga 180  
 aatgagagga cagcaagatt gtgggtatgg aatggggcaa agcaataagg gaaaattagt 240  
 gtggcagggt tcagtacagc agcctggggt cccatttccc cccatattca aatgctgaca 300  
 ctctcttctc ctcccagggtc cagcctgtgg tgtccaca atg ccc cag gcc tct 353  
 Met Pro Gln Ala Ser  
 1  
 gag cac cgc ctg ggc cgt acc cga gag cca cct gtt aat atc cag ccc 401  
 Glu His Arg Leu Gly Arg Thr Arg Glu Pro Pro Val Asn Ile Gln Pro  
 6 11 16 21  
 cga gtg gga tcc aag cta cca ttt gcc ccc agg gcc cgc agc aag gag 449  
 Arg Val Gly Ser Lys Leu Pro Phe Ala Pro Arg Ala Arg Ser Lys Glu  
 22 27 32 37  
 cgc aga aac cca gcc tct ggg cca aac ccc atg tta cga cct ctg cct 497  
 Arg Arg Asn Pro Ala Ser Gly Pro Asn Pro Met Leu Arg Pro Leu Pro  
 38 43 48 53  
 ccc cgg cca ggt ctg cct gat gaa cgg ctc aag aaa ctg gag ctg gga 545  
 Pro Arg Pro Gly Leu Pro Asp Glu Arg Leu Lys Lys Leu Glu Leu Gly  
 54 59 64 69  
 cgg gga cgg acc tca ggc cct cgt ccc aga ggc ccc ctt cga gca gat 593  
 Arg Gly Arg Thr Ser Gly Pro Arg Pro Arg Gly Pro Leu Arg Ala Asp  
 70 75 80 85  
 cat ggg gtt ccc ctg cct ggc tca cca ccc cca aca gtg gct ttg cct 641  
 His Gly Val Pro Leu Pro Gly Ser Pro Pro Pro Thr Val Ala Leu Pro  
 86 91 96 101  
 ctc cca tct cgg acc aac tta gcc cgt tcc aag tct gtg agc agt ggg 689  
 Leu Pro Ser Arg Thr Asn Leu Ala Arg Ser Lys Ser Val Ser Ser Gly  
 102 107 112 117  
 gac ttg cgt cca atg ggg att gcc ttg gga ggg cac cgt ggc acc gga 737  
 Asp Leu Arg Pro Met Gly Ile Ala Leu Gly Gly His Arg Gly Thr Gly

118	123	128	133	
gag ctt ggg gct gca	ctg agc cgc ttg gcc	ctc cgg cct gag cca	ccc	785
Glu Leu Gly Ala Ala	Leu Ser Arg Leu Ala	Leu Arg Pro Glu Pro	Pro	
134	139	144	149	
act ttg aga cgt agc	act tct ctc cgc cgc	cta ggg ggc ttt cct	gga	833
Thr Leu Arg Arg Ser	Thr Ser Leu Arg Arg	Leu Gly Gly Phe Pro	Gly	
150	155	160	165	
ccc cct acc ctg ttc	agc ata cgg aca gag	ccc cct gct tcc cat	ggc	881
Pro Pro Thr Leu Phe	Ser Ile Arg Thr Glu	Pro Pro Ala Ser His	Gly	
166	171	176	181	
tcc ttc cac atg ata	tcc gcc cgg tcc tct	gag cct ttc tac tct	gat	929
Ser Phe His Met Ile	Ser Ala Arg Ser Ser	Glu Pro Phe Tyr Ser	Asp	
182	187	192	197	
gac aag atg gct cat	cac aca ctc ctt ctg	ggc tct ggt cat gtt	ggc	977
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 119 124 129 134

atc cag aag ctt tat gaa cga aag ata aag gag gga atg gat atg aac 486  
 Ile Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn  
 135 140 145 150

tac att atc caa agg aag aaa gaa ttt cgg aac cct agc atc tac gag 534  
 Tyr Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu  
 151 156 161 166

aag ctg atc cag ttc tgt gcc att gac gag ctt ggc acc aac tac cca	582
Lys Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro	
167 172 177 182	
aag gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag	630
Lys Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu	
183 188 193 198	
gca tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc	678
Ala Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala	
199 204 209 214	
aaa aag gag cga aca aaa att gag ttt gtg acg ggc acc aaa aaa ggc	726
Lys Lys Glu Arg Thr Lys Ile Glu Phe Val Thr Gly Thr Lys Lys Gly	
215 220 225 230	
acc acg acc aac gcc acg tcc acc acc act acc act gcc agc aca gct	774
Thr Thr Thr Asn Ala Thr Ser Thr Thr Thr Thr Thr Ala Ser Thr Ala	
231 236 241 246	
gtt gca gat gct cag aag aga aag agc aag tgg gat tcg gct atc cca	822
Val Ala Asp Ala Gln Lys Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro	
247 252 257 262	
gtg aca acg ata gcc cag ccc acc atc ctc acc acc aca gcc acc ctg	870
Val Thr Thr Ile Ala Gln Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu	
263 268 273 278	
cca gct gtt gtc acg gtc acc acc agc gcc agc ggc tcc aag acc acc	918
Pro Ala Val Val Thr Val Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr	
279 284 289 294	
gtc atc tct gct gtg ggc acc att gtg aag aag gcc aag cag tga cct	966
Val Ile Ser Ala Val Gly Thr Ile Val Lys Lys Ala Lys Gln *	
295 300 305	
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gcgccacttt gtatatattca ggactgggac ctactcccca gatgccacct gagaggagct	1086
tctgtttggc attccagatg gaaggacagg cagcacggga gccaggcgct gtggacaggg	1146
tctgtccag caccacctgg ggtctgccgc ctattaaaag tgcogtattc ttacctcttg	1206
gcatctcaga tgcactggcc tctcctgcat tctgtttgca ggcaaagtct tcagctcaca	1266
tgtcccccaa gactcaatag tcttggttg gactattgcc tcagggttga caacaggggtg	1326
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at	1388

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 <222> (37) .. (1137)

<400> 282

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Val Leu Ser Ser Leu Ala Val Tyr Ala Glu Asp Ser Glu Pro Glu Ser		
7 12 17 22		
gat ggc gag gct gga atc gag gcg gtg ggc agc gcg gct gag gag aaa		150
Asp Gly Glu Ala Gly Ile Glu Ala Val Gly Ser Ala Ala Glu Glu Lys		
23 28 33 38		
ggc gga ttg gta tct gat gcc tat ggg gag gat gac ttt tct cgt cta		198
Gly Gly Leu Val Ser Asp Ala Tyr Gly Glu Asp Asp Phe Ser Arg Leu		
39 44 49 54		
ggg ggt gat gaa gat ggt tat gaa gaa gaa gaa gat gag aac agt aga		246
Gly Gly Asp Glu Asp Gly Tyr Glu Glu Glu Asp Glu Asn Ser Arg		
55 60 65 70		
cag tcg aga cgg tgt ttc act atg ttt ccc agt ctg gtt tca aac ttc		294
Gln Ser Arg Arg Cys Phe Thr Met Phe Pro Ser Leu Val Ser Asn Phe		
71 76 81 86		
tgg cct caa gca att ccc ctg cct cac cct ccc aaa gtg ctg gga tta		342
Trp Pro Gln Ala Ile Pro Leu Pro His Pro Pro Lys Val Leu Gly Leu		
87 92 97 102		
cag gaa gat gac gat tca gag act gaa aaa cct gag gct gat gac cca		390
Gln Glu Asp Asp Asp Ser Glu Thr Glu Lys Pro Glu Ala Asp Asp Pro		
103 108 113 118		
aag gat aat aca gaa gca gaa aag cga gac ccc cag gaa ctc gtg gcc		438
Lys Asp Asn Thr Glu Ala Glu Lys Arg Asp Pro Gln Glu Leu Val Ala		
119 124 129 134		
tcc ttt tct gaa aga gtt cgg aac atg tcg cct gat gaa atc aag atc		486
Ser Phe Ser Glu Arg Val Arg Asn Met Ser Pro Asp Glu Ile Lys Ile		
135 140 145 150		
ccg cca gaa ccc cct ggc aga tgt tca aat cac ttg caa gac aag atc		534
Pro Pro Glu Pro Pro Gly Arg Cys Ser Asn His Leu Gln Asp Lys Ile		
151 156 161 166		
cag aag ctt tat gaa cga aag ata aag gag gga atg gat atg aac tac		582
Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn Tyr		
167 172 177 182		

att atc caa agg aag aaa gaa ttt cgg aac cct agc atc tac gag aag	630
Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu Lys	
183 188 193 198	
ctg atc cag ttc tgt gcc att gac gag ctt ggc acc aac tac cca aag	678
Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro Lys	
199 204 209 214	
gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag gca	726
Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu Ala	
215 220 225 230	
tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc aaa	774
Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala Lys	
231 236 241 246	
aag gag cga aca aaa gct tgt tgc agg gac gtg tct gca gcg cct ggg	822
Lys Glu Arg Thr Lys Ala Cys Cys Arg Asp Val Ser Ala Ala Pro Gly	
247 252 257 262	
gaa ccg agc tgt cct tcc cct gtg cgg gcg ggc acc gcc tcc tcc tgg	870
Glu Pro Ser Cys Pro Ser Pro Val Arg Ala Gly Thr Ala Ser Ser Trp	
263 268 273 278	
att gag ttt gtg acg ggc acc aaa aaa ggc acc acg acc aac gcc acg	918
Ile Glu Phe Val Thr Gly Thr Lys Lys Gly Thr Thr Thr Asn Ala Thr	
279 284 289 294	
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Ser Thr Thr Thr Thr Thr Ala Ser Thr Ala Val Ala Asp Ala Gln Lys	
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Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro Val Thr Thr Ile Ala Gln	
311 316 321 326	
ccc acc atc ctc acc acc aca gcc acc ctg cca gct gtt gtc acg gtc	1062
Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu Pro Ala Val Val Thr Val	
327 332 337 342	
acc acc agc gcc agc ggc tcc aag acc acc gtc atc tct gct gtg ggc	1110
Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr Val Ile Ser Ala Val Gly	
343 348 353 358	
acc att gtg aag aag gcc aag cag tga cctga gggggccaccc taggacttga	1162
Thr Ile Val Lys Lys Ala Lys Gln *	
359 364	
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tcctgcattc tgtttgcagg caaatgcttc agctcacatg tcccccaaga ctcaatagtc	1462

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Met Ala Glu Arg Gln Glu Glu Gln Arg Gly Ser Pro  
1 5 10  
ccc ttg agg gcg gaa ggc aag gcc gac gcg gag gtt aag ctc att ctg 159  
Pro Leu Arg Ala Glu Gly Lys Ala Asp Ala Glu Val Lys Leu Ile Leu  
13 18 23 28  
tac cat tgg acg cat tcc ttc agc tct caa aag gtg cgc ttg gta att 207  
Tyr His Trp Thr His Ser Phe Ser Ser Gln Lys Val Arg Leu Val Ile  
29 34 39 44  
gct gaa aag gca ttg aag tgc gag gaa cat gat gta agt ctg ccc ttg 255  
Ala Glu Lys Ala Leu Lys Cys Glu Glu His Asp Val Ser Leu Pro Leu  
45 50 55 60  
agt gag cac aat gag cct tgg ttt atg cgt ttg aac tca act gga gaa 303  
Ser Glu His Asn Glu Pro Trp Phe Met Arg Leu Asn Ser Thr Gly Glu  
61 66 71 76  
gtg cct gtc ctt atc cac ggg gaa aac ata att tgt gag gcc act cag 351  
Val Pro Val Leu Ile His Gly Glu Asn Ile Ile Cys Glu Ala Thr Gln  
77 82 87 92  
atc att gat tat ctt gaa cag act ttc ctg gat gaa aga aca ccc agg 399  
Ile Ile Asp Tyr Leu Glu Gln Thr Phe Leu Asp Glu Arg Thr Pro Arg  
93 98 103 108  
tta atg cct gat aaa gaa agc atg tat tac cca cgg gta caa cat tac 447  
Leu Met Pro Asp Lys Glu Ser Met Tyr Tyr Pro Arg Val Gln His Tyr  
109 114 119 124  
cga gag ctg ctt gac tcc ttg cca atg gat gcc tat aca cat ggc tgc 495  
Arg Glu Leu Leu Asp Ser Leu Pro Met Asp Ala Tyr Thr His Gly Cys  
125 130 135 140  
att tta cat cct gag tta act gtg gac tcc atg atc ccg gct tat gca 543

Ile	Leu	His	Pro	Glu	Leu	Thr	Val	Asp	Ser	Met	Ile	Pro	Ala	Tyr	Ala		
141					146					151					156		
act	aca	agg	att	cgt	agc	caa	att	gga	aac	aca	gag	tct	gag	ctg	aag	591	
Thr	Thr	Arg	Ile	Arg	Ser	Gln	Ile	Gly	Asn	Thr	Glu	Ser	Glu	Leu	Lys		
157					162					167					172		
aaa	ctt	gct	gaa	gaa	aac	cca	gat	tta	caa	gaa	gca	tac	att	gca	aaa	639	
Lys	Leu	Ala	Glu	Glu	Asn	Pro	Asp	Leu	Gln	Glu	Ala	Tyr	Ile	Ala	Lys		
173					178					183					188		
cag	aaa	cga	ctt	aaa	tca	aag	ctg	ctt	gat	cat	gac	aat	gtc	aag	tat	687	
Gln	Lys	Arg	Leu	Lys	Ser	Lys	Leu	Leu	Asp	His	Asp	Asn	Val	Lys	Tyr		
189					194					199					204		
ttg	aag	aaa	att	ctt	gat	gag	ttg	gag	aaa	gtc	ttg	gat	cag	gtt	gaa	735	
Leu	Lys	Lys	Ile	Leu	Asp	Glu	Leu	Glu	Lys	Val	Leu	Asp	Gln	Val	Glu		
205					210					215					220		
act	gaa	ttg	caa	aga	aga	aat	gaa	gaa	acc	cca	gaa	gag	ggc	cag	caa	783	
Thr	Glu	Leu	Gln	Arg	Arg	Asn	Glu	Glu	Thr	Pro	Glu	Glu	Gly	Gln	Gln		
221					226					231					236		
cct	tgg	ctc	tgc	ggc	gaa	tcc	ttc	acc	ctg	gca	gac	gtc	tca	ctc	gct	831	
Pro	Trp	Leu	Cys	Gly	Glu	Ser	Phe	Thr	Leu	Ala	Asp	Val	Ser	Leu	Ala		
237					242					247					252		
gtc	aca	ttg	cat	cga	ctg	aag	ttc	ctg	ggg	ttt	gca	agg	aga	aac	ttg	879	
Val	Thr	Leu	His	Arg	Leu	Lys	Phe	Leu	Gly	Phe	Ala	Arg	Arg	Asn	Trp		
253					258					263					268		
gga	aac	gga	aag	cga	cca	aac	ttg	gaa	acc	tat	tac	gag	cgt	gtc	ttg	927	
Gly	Asn	Gly	Lys	Arg	Pro	Asn	Leu	Glu	Thr	Tyr	Tyr	Glu	Arg	Val	Leu		
269					274					279					284		
aag	aga	aaa	aca	ttt	aac	aag	gtt	tta	gga	cat	gtc	aac	aat	ata	tta	975	
Lys	Arg	Lys	Thr	Phe	Asn	Lys	Val	Leu	Gly	His	Val	Asn	Asn	Ile	Leu		
285					290					295					300		
atc	tct	gca	gtg	ctg	cca	aca	gca	ttc	cgg	gtg	gcc	aag	aaa	agg	gcc	1023	
Ile	Ser	Ala	Val	Leu	Pro	Thr	Ala	Phe	Arg	Val	Ala	Lys	Lys	Arg	Ala		
301					306					311					316		
cca	aaa	gtt	ctt	ggc	acg	acc	ctt	gtg	gtt	ggc	ttg	ctt	gca	gga	gtg	1071	
Pro	Lys	Val	Leu	Gly	Thr	Thr	Leu	Val	Val	Gly	Leu	Leu	Ala	Gly	Val		
317					322					327					332		
gga	tat	ttt	gct	ttt	atg	ctt	ttc	aga	aag	aga	ctt	ggc	agc	atg	ata	1119	
Gly	Tyr	Phe	Ala	Phe	Met	Leu	Phe	Arg	Lys	Arg	Leu	Gly	Ser	Met	Ile		
333					338					343					348		
tta	gca	ctt	aga	ccc	aga	cca	aat	tat	ttc	tag						1152	
Leu	Ala	Leu	Arg	Pro	Arg	Pro	Asn	Tyr	Phe	*							
349					354					359							

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<220>  
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 <222> (50)..(1774)

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 Pro Arg Ala Ala Arg Ala Pro Ala Thr Leu Leu Leu Ala Leu Gly Ala  
 3 8 13 18

gtg ctg tgg cct gcg gct ggc gcc tgg gag ctt acg att ttg cac acc 151  
 Val Leu Trp Pro Ala Ala Gly Ala Trp Glu Leu Thr Ile Leu His Thr  
 19 24 29 34

aac gac gtg cac agc cgg ctg gag cag acc agc gag gac tcc agc aag 199  
 Asn Asp Val His Ser Arg Leu Glu Gln Thr Ser Glu Asp Ser Ser Lys  
 35 40 45 50

tgc gtc aac gcc agc cgc tgc atg ggt ggc gtg gct cgg ctc ttc acc 247  
 Cys Val Asn Ala Ser Arg Cys Met Gly Gly Val Ala Arg Leu Phe Thr  
 51 56 61 66

aag gtt cag cag atc cgc cgc gcc gaa ccc aac gtg ctg ctg ctg gac 295  
 Lys Val Gln Gln Ile Arg Arg Ala Glu Pro Asn Val Leu Leu Leu Asp  
 67 72 77 82

gcc ggc gac cag tac cag ggc act atc tgg ttc acc gtg tac aag ggc 343  
 Ala Gly Asp Gln Tyr Gln Gly Thr Ile Trp Phe Thr Val Tyr Lys Gly  
 83 88 93 98

gcc gag gtg gcg cac ttc atg aac gcc ctg cgc tac gat gcc atg gca 391  
 Ala Glu Val Ala His Phe Met Asn Ala Leu Arg Tyr Asp Ala Met Ala  
 99 104 109 114

ctg gga aat cat gaa ttt gat aat ggt gtg gaa gga ctg atc gag cca 439  
 Leu Gly Asn His Glu Phe Asp Asn Gly Val Glu Gly Leu Ile Glu Pro  
 115 120 125 130

ctc ctc aaa gag gcc aaa ttt cca att ctg agt gca aac att aaa gca 487  
 Leu Leu Lys Glu Ala Lys Phe Pro Ile Leu Ser Ala Asn Ile Lys Ala  
 131 136 141 146

aag ggg cca cta gca tct caa ata tca gga ctt tat ttg cca tat aaa 535  
 Lys Gly Pro Leu Ala Ser Gln Ile Ser Gly Leu Tyr Leu Pro Tyr Lys  
 147 152 157 162

gtt ctt cct gtt ggt gat gaa gtt gtg gga atc gtt gga tac act tcc 583

Val 163	Leu	Pro	Val	Gly	Asp 168	Glu	Val	Val	Gly	Ile 173	Val	Gly	Tyr	Thr	Ser 178	
aaa	gaa	acc	cct	ttt	ctc	tca	aat	cca	ggg	aca	aat	tta	gtg	ttt	gaa	631
Lys 179	Glu	Thr	Pro	Phe	Leu 184	Ser	Asn	Pro	Gly	Thr 189	Asn	Leu	Val	Phe	Glu 194	
gat	gaa	atc	act	gca	tta	caa	cct	gaa	gta	gat	aag	tta	aaa	act	cta	679
Asp 195	Glu	Ile	Thr	Ala	Leu 200	Gln	Pro	Glu	Val	Asp 205	Lys	Leu	Lys	Thr	Leu 210	
aat	gtg	aac	aaa	att	att	gca	ctg	gga	cat	tcg	ggg	ttt	gaa	atg	gat	727
Asn 211	Val	Asn	Lys	Ile	Ile 216	Ala	Leu	Gly	His	Ser 221	Gly	Phe	Glu	Met	Asp 226	
aaa	ctc	atc	gct	cag	aaa	gtg	agg	ggg	gtg	gac	gtc	gtg	gtg	gga	gga	775
Lys 227	Leu	Ile	Ala	Gln	Lys 232	Val	Arg	Gly	Val	Asp 237	Val	Val	Val	Gly	Gly 242	
cac	tcc	aac	aca	ttt	ctt	tac	aca	ggc	aat	cca	cct	tcc	aaa	gag	gtg	823
His 243	Ser	Asn	Thr	Phe	Leu 248	Tyr	Thr	Gly	Asn	Pro 253	Pro	Ser	Lys	Glu	Val 258	
cct	gct	ggg	aag	tac	cca	ttc	ata	gtc	act	tct	gat	gat	ggg	cgg	aag	871
Pro 259	Ala	Gly	Lys	Tyr	Pro 264	Phe	Ile	Val	Thr	Ser 269	Asp	Asp	Gly	Arg	Lys 274	
gtt	cct	gta	gtc	cag	gcc	tat	gct	ttt	ggc	aaa	tac	cta	ggc	tat	ctg	919
Val 275	Pro	Val	Val	Gln	Ala 280	Tyr	Ala	Phe	Gly	Lys 285	Tyr	Leu	Gly	Tyr	Leu 290	
aag	atc	gag	ttt	gat	gaa	aga	gga	aac	gtc	atc	tct	tcc	cat	gga	aat	967
Lys 291	Ile	Glu	Phe	Asp	Glu 296	Arg	Gly	Asn	Val	Ile 301	Ser	Ser	His	Gly	Asn 306	
ccc	att	ctt	cta	aac	agc	agc	att	cct	gaa	gat	cca	agc	ata	aaa	gca	1015
Pro 307	Ile	Leu	Leu	Asn	Ser 312	Ser	Ile	Pro	Glu	Asp 317	Pro	Ser	Ile	Lys	Ala 322	
gac	att	aac	aaa	tgg	agg	ata	aaa	ttg	gat	aat	tat	tct	acc	cag	gaa	1063
Asp 323	Ile	Asn	Lys	Trp	Arg 328	Ile	Lys	Leu	Asp	Asn 333	Tyr	Ser	Thr	Gln	Glu 338	
tta	ggg	aaa	aca	att	gtc	tat	ctg	gat	ggc	tcc	tct	caa	tca	tgc	cgc	1111
Leu 339	Gly	Lys	Thr	Ile	Val 344	Tyr	Leu	Asp	Gly	Ser 349	Ser	Gln	Ser	Cys	Arg 354	
ttt	aga	gaa	tgc	aac	atg	ggc	aac	ctg	att	tgt	gat	gca	atg	att	aac	1159
Phe 355	Arg	Glu	Cys	Asn	Met 360	Gly	Asn	Leu	Ile	Cys 365	Asp	Ala	Met	Ile	Asn 370	
aac	aac	ctg	aga	cac	acg	gat	gaa	atg	ttc	tgg	aac	cac	gta	tcc	atg	1207
Asn 371	Asn	Leu	Arg	His	Thr 376	Asp	Glu	Met	Phe	Trp 381	Asn	His	Val	Ser	Met 386	
tgc	att	tta	aat	gga	ggg	ggg	atc	cgg	tcg	ccc	att	gat	gaa	cgc	aac	1255
Cys	Ile	Leu	Asn	Gly	Gly	Gly	Ile	Arg	Ser	Pro	Ile	Asp	Glu	Arg	Asn	

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aat ggc aca att acc	tgg gag aac ctg gct	gct gta ttg ccc ttt gga		1303
Asn Gly Thr Ile Thr	Trp Glu Asn Leu Ala	Ala Val Leu Pro Phe Gly		
403	408	413	418	
ggc aca ttt gac cta	gtc cag tta aaa ggt	tcc acc ctg aag aag gcc		1351
Gly Thr Phe Asp Leu	Val Gln Leu Lys Gly	Ser Thr Leu Lys Lys Ala		
419	424	429	434	
ttt gag cat agc gtg	cac cgc tac ggc cag	tcc act gga gag ttc ctg		1399
Phe Glu His Ser Val	His Arg Tyr Gly Gln	Ser Thr Gly Glu Phe Leu		
435	440	445	450	
cag gtg ggc gga atc	cat gtg gtg tat gat	ctt tcc cga aaa cct gga		1447
Gln Val Gly Gly Ile	His Val Val Tyr Asp	Leu Ser Arg Lys Pro Gly		
451	456	461	466	
gac aga gta gtc aaa	tta gat gtt ctt tgc	acc aag tgt cga gtg ccc		1495
Asp Arg Val Val Lys	Leu Asp Val Leu Cys	Thr Lys Cys Arg Val Pro		
467	472	477	482	
agt tat gac cct ctc	aaa atg gag gag gta	tat aag gtg atc ctc cca		1543
Ser Tyr Asp Pro Leu	Lys Met Asp Glu Val	Tyr Lys Val Ile Leu Pro		
483	488	493	498	
aac ttc ctg gcc aat	ggt gga gat ggg ttc	cag atg ata aaa gat gaa		1591
Asn Phe Leu Ala Asn	Gly Gly Asp Gly Phe	Gln Met Ile Lys Asp Glu		
499	504	509	514	
tta tta aga cat gac	tct ggt gag caa gat	atc aac gtg gtt tct aca		1639
Leu Leu Arg His Asp	Ser Gly Asp Gln Asp	Ile Asn Val Val Ser Thr		
515	520	525	530	
tat atc tcc aaa atg	aaa gta att tat cca	gca gtt gaa ggt cgg atc		1687
Tyr Ile Ser Lys Met	Lys Val Ile Tyr Pro	Ala Val Glu Gly Arg Ile		
531	536	541	546	
aag ttt tcc aca gga	agt cac tgc cat gga	agc ttt tct tta ata ttt		1735
Lys Phe Ser Thr Gly	Ser His Cys His Gly	Ser Phe Ser Leu Ile Phe		
547	552	557	562	
ctt tca ctt tgg gca	gtg atc ttt gtt tta	tac caa tag ccaaaaattc		1784
Leu Ser Leu Trp Ala	Val Ile Phe Val Leu	Tyr Gln *		
563	568	573		
tccttgccctt taatgtgtga	aactgcattt tttcaagtga	gattcaaate tgccttttag		1844
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cattataaaa tgaagagaca	gacatgatta ctcagggtca	gcaacctagt gagttagaaa		1964
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ttttaatgaa attttactaa	caatttttaa ccatattttt	cttcttcata tccattttcta		2084
atccatcaaa cagcttatgt	ttacataaaa ttttatcatt	cacaaggaag ttttaagcac		2144

actgtctcat ttgatatcca caacttatTT ttggtaggaa agagagatgt ttttcccacc 2204  
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cgcacgtctg tgtcactgcc caccttcagc caccttcaca cttoctagtg ctgcctgagt	180
catggtaga atg aca agc gtg gct gcc cga tct cac atg tgg cca tgc	228
Met Thr Ser Val Ala Ala Arg Ser His Met Trp Pro Cys	
1 5 10	
tct gga aag aca ggt gaa cag gaa ggt tcc ctt tca acg ctc ttc agt	276
Ser Gly Lys Thr Gly Glu Gln Glu Gly Ser Leu Ser Thr Leu Phe Ser	
14 19 24 29	
aga ctt tat gca ttt gtg atg tct gtt att tca gat gac aga ttt gaa	324
Arg Leu Tyr Ala Phe Val Met Ser Val Ile Ser Asp Asp Arg Phe Glu	
30 35 40 45	
gat ctg gaa gag gca aat cca ttc tct ttt aga gag ttt ctg aag acc	372
Asp Leu Glu Glu Ala Asn Pro Phe Ser Phe Arg Glu Phe Leu Lys Thr	
46 51 56 61	
aag aac ctc ggc ctc tcg aaa gag gat ccg gcc agc aga att tat gca	420
Lys Asn Leu Gly Leu Ser Lys Glu Asp Pro Ala Ser Arg Ile Tyr Ala	
62 67 72 77	
aag gaa gcc tcg agg cat tcc ctg gga ctt gac cac aac tcc cca ccc	468
Lys Glu Ala Ser Arg His Ser Leu Gly Leu Asp His Asn Ser Pro Pro	
78 83 88 93	
tcc caa acc ggc ggg tat ggc ctg gag tat cag cag cca ttt ttc gag	516
Ser Gln Thr Gly Gly Tyr Gly Leu Glu Tyr Gln Gln Pro Phe Phe Glu	
94 99 104 109	
gat ccg aca ggg gct ggt gac ctc ctg gat gag gag gag gat gag gac	564
Asp Pro Thr Gly Ala Gly Asp Leu Leu Asp Glu Glu Glu Asp Glu Asp	
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Thr Gly Trp Ser Gly Ala Tyr Leu Pro Ser Ala Ile Glu Gln Thr His	
126 131 136 141	
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Pro Glu Arg Val Pro Ala Gly Thr Ser Pro Cys Ser Thr Tyr Leu Ser	
142 147 152 157	
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Phe Phe Ser Thr Pro Ser Glu Leu Ala Gly Pro Glu Ser Leu Pro Ser	
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Trp Ala Leu Ser Asp Thr Asp Ser Arg Val Ser Pro Ala Ser Pro Ala	

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Gly Ser Pro Ser Ala Asp Phe Ala Val His Gly Glu Ser Leu Gly Asp				
190	195	200	205	
agg cac ctg cgg acg ctg cag ata agt tac gac gca ctg aaa gat gaa				852
Arg His Leu Arg Thr Leu Gln Ile Ser Tyr Asp Ala Leu Lys Asp Glu				
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aat tct aag ctg aga aga aag ctg aat gag gtt cag agc ttc tct gaa				900
Asn Ser Lys Leu Arg Arg Lys Leu Asn Glu Val Gln Ser Phe Ser Glu				
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gct caa aca gaa atg gtg agg acg ctt gag cgg aag tta gaa gca aaa				948
Ala Gln Thr Glu Met Val Arg Thr Leu Glu Arg Lys Leu Glu Ala Lys				
238	243	248	253	
atg atc aag gag gaa agc gac tac cac gac ctg gag tcg gtg gtt cag				996
Met Ile Lys Glu Glu Ser Asp Tyr His Asp Leu Glu Ser Val Val Gln				
254	259	264	269	
cag gtg gag cag aac ctg gag ctg atg acc aaa cgg gct gta aag gca				1044
Gln Val Glu Gln Asn Leu Glu Leu Met Thr Lys Arg Ala Val Lys Ala				
270	275	280	285	
gaa aac cac gtc gtg aaa cta aaa cag gaa atc agt ttg ctc cag gcg				1092
Glu Asn His Val Val Lys Leu Lys Gln Glu Ile Ser Leu Leu Gln Ala				
286	291	296	301	
cag gtc tcc aac ttc cag cga gag aat gaa gcc ctg cgg tgc ggc cag				1140
Gln Val Ser Asn Phe Gln Arg Glu Asn Glu Ala Leu Arg Cys Gly Gln				
302	307	312	317	
ggt gcc agc ctg acc gtg gtg aag cag aac gcc gac gtg gcc ctg cag				1188
Gly Ala Ser Leu Thr Val Val Lys Gln Asn Ala Asp Val Ala Leu Gln				
318	323	328	333	
aac ctc cgg gtg gtc atg aac agt gca cag gct tcc atc aag caa ctg				1236
Asn Leu Arg Val Val Met Asn Ser Ala Gln Ala Ser Ile Lys Gln Leu				
334	339	344	349	
gtt tcc gga gct gag aca ctg aat ctt gtt gcc gaa atc ctt aaa tct				1284
Val Ser Gly Ala Glu Thr Leu Asn Leu Val Ala Glu Ile Leu Lys Ser				
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Ile Asp Arg Ile Ser Glu Val Lys Asp Glu Glu Glu Asp Ser *				
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 ccg cct gcc agg ctg tgc ggc gtc atg gtg ccg gcg ccc atc caa gac 280  
 Pro Pro Ala Arg Leu Ser Gly Val Met Val Pro Ala Pro Ile Gln Asp  
 7 12 17 22  
 ctg gag gcc ctg cgc gcg ctc acg gcg ctc ttc aaa gag cag cgg aac 328  
 Leu Glu Ala Leu Arg Ala Leu Thr Ala Leu Phe Lys Glu Gln Arg Asn  
 23 28 33 38  
 cga gaa aca gca ccc agg act atc ttc caa aga gtt ctg gat atc cta 376  
 Arg Glu Thr Ala Pro Arg Thr Ile Phe Gln Arg Val Leu Asp Ile Leu  
 39 44 49 54

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Lys	Lys	Ser	Ser	His	Ala	Val	Glu	Leu	Ala	Cys	Arg	Asp	Pro	Ser	Gln	
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gtg	gaa	aac	ctg	gct	tcc	agt	ctg	cag	tta	ata	aca	gaa	tgc	ttc	agg	472
Val	Glu	Asn	Leu	Ala	Ser	Ser	Leu	Gln	Leu	Ile	Thr	Glu	Cys	Phe	Arg	
71					76					81					86	
tgt	ctt	cgc	aat	gct	tgc	ata	gag	tgt	tct	gtg	aac	cag	aat	tca	atc	520
Cys	Leu	Arg	Asn	Ala	Cys	Ile	Glu	Cys	Ser	Val	Asn	Gln	Asn	Ser	Ile	
87					92					97					102	
agg	aac	ttg	gat	acg	att	ggc	gtt	gct	gtt	gat	ttg	att	ctt	ctg	ttt	568
Arg	Asn	Leu	Asp	Thr	Ile	Gly	Val	Ala	Val	Asp	Leu	Ile	Leu	Leu	Phe	
103					108					113					118	
cgt	gaa	ctg	cga	gtg	gaa	cag	gaa	tct	ctg	ttg	aca	gct	ttt	cgc	tgt	616
Arg	Glu	Leu	Arg	Val	Glu	Gln	Glu	Ser	Leu	Leu	Thr	Ala	Phe	Arg	Cys	
119					124					129					134	
ggc	ctg	cag	ttt	tta	ggc	aac	att	gcc	tca	cgg	aat	gaa	gat	tcc	cag	664
Gly	Leu	Gln	Phe	Leu	Gly	Asn	Ile	Ala	Ser	Arg	Asn	Glu	Asp	Ser	Gln	
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Ser	Ile	Val	Trp	Val	His	Ala	Phe	Pro	Glu	Leu	Phe	Leu	Ser	Cys	Leu	
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Asn	His	Pro	Asp	Lys	Lys	Ile	Val	Ala	Tyr	Ser	Ser	Met	Ile	Leu	Phe	
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aca	tcc	ctt	aat	cat	gaa	aga	atg	aaa	gaa	ctg	gag	gag	aac	ctc	aat	808
Thr	Ser	Leu	Asn	His	Glu	Arg	Met	Lys	Glu	Leu	Glu	Glu	Asn	Leu	Asn	
183					188					193					198	
att	gca	att	gat	gtc	ata	gat	gct	tac	caa	aaa	cat	cct	gaa	tca	gaa	856
Ile	Ala	Ile	Asp	Val	Ile	Asp	Ala	Tyr	Gln	Lys	His	Pro	Glu	Ser	Glu	
199					204					209					214	
tgg	ccg	ttc	ttg	att	att	aca	gac	ctc	ttt	ctg	aaa	agc	ccg	gaa	ttg	904
Trp	Pro	Phe	Leu	Ile	Ile	Thr	Asp	Leu	Phe	Leu	Lys	Ser	Pro	Glu	Leu	
215					220					225					230	
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Val	Gln	Ala	Met	Phe	Pro	Lys	Leu	Asn	Asn	Gln	Glu	Arg	Val	Thr	Leu	
231					236					241					246	
tta	gac	ctt	atg	ata	gcc	aag	ata	acg	agt	gat	gag	cca	ctc	acc	aag	1000
Leu	Asp	Leu	Met	Ile	Ala	Lys	Ile	Thr	Ser	Asp	Glu	Pro	Leu	Thr	Lys	
247					252					257					262	
gat	gac	atc	cct	gtg	ttt	ttg	cgg	cat	gct	gag	ttg	att	gca	agc	acc	1048
Asp	Asp	Ile	Pro	Val	Phe	Leu	Arg	His	Ala	Glu	Leu	Ile	Ala	Ser	Thr	
263					268					273					278	

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Phe Val Asp Gln Cys Lys Thr Val Leu Lys Leu Ala Ser Glu Glu Pro	
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Pro Asp Asp Glu Glu Ala Leu Ala Thr Ile Arg Leu Leu Asp Val Leu	
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Cys Glu Met Thr Val Asn Thr Glu Leu Leu Gly Tyr Leu Gln Val Phe	
311 316 321 326	
cct ggc ttg ctg gaa aga gtg att gat ctt ttg cgg gtg att cat gta	1240
Pro Gly Leu Leu Glu Arg Val Ile Asp Leu Leu Arg Val Ile His Val	
327 332 337 342	
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Ala Gly Lys Glu Thr Thr Asn Ile Phe Ser Asn Cys Gly Cys Val Arg	
343 348 353 358	
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Ala Glu Gly Asp Ile Ser Asn Val Ala Asn Gly Phe Lys Ser His Leu	
359 364 369 374	
att cgt ctg att gga aat ctg tgt tac aag aat aaa gat aac caa gac	1384
Ile Arg Leu Ile Gly Asn Leu Cys Tyr Lys Asn Lys Asp Asn Gln Asp	
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Lys Val Asn Glu Leu Asp Gly Ile Pro Leu Ile Leu Asp Asn Cys Asn	
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Arg Asn Leu Thr Glu Asp Asn Ser Gln Asn Gln Asp Leu Ile Ala Lys	
423 428 433 438	
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Met Glu Glu Gln Gly Leu Ala Asp Ala Ser Leu Leu Lys Lys Val Gly	
439 444 449 454	
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Phe Glu Val Glu Lys Lys Gly Glu Lys Leu Ile Leu Lys Ser Thr Arg	
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Asp Thr Pro Lys Pro *	
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agtgaagta actgagtgtt ctcttgtttc tttgcattaa tgtaactgtg tggtttgcc	1858

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Ser Asp Leu Glu Thr Thr Thr Ser His Met Pro Arg Ser Gly Ala Pro  
9 14 19 24

aaa gag cgc cct gcg gag cct ctc acc cct ccc cca tcc tat ggc cac 149  
Lys Glu Arg Pro Ala Glu Pro Leu Thr Pro Pro Pro Ser Tyr Gly His  
25 30 35 40

cag cca cag aca ggg tct ggg gag tct tca gga gcc tcg ggg gac aag 197  
Gln Pro Gln Thr Gly Ser Gly Glu Ser Ser Gly Ala Ser Gly Asp Lys  
41 46 51 56

gac cac ctg tac agc acg gta tgc aag cct cgg tcc cca aag cct gca 245  
Asp His Leu Tyr Ser Thr Val Cys Lys Pro Arg Ser Pro Lys Pro Ala  
57 62 67 72

gcc ccg gcg gcc cct cca ttc tcc tct tcc agc ggt gtc ttg ggt acc 293  
Ala Pro Ala Ala Pro Pro Phe Ser Ser Ser Ser Gly Val Leu Gly Thr  
73 78 83 88

ggg ctc tgt gag cta gat cgg ttg ctt cag gaa ctt aat gcc act cag 341  
Gly Leu Cys Glu Leu Asp Arg Leu Leu Gln Glu Leu Asn Ala Thr Gln  
89 94 99 104

ttc aac atc aca gat gaa atc atg tct cag ttc cca tct agc aag gtg 389  
Phe Asn Ile Thr Asp Glu Ile Met Ser Gln Phe Pro Ser Ser Lys Val  
105 110 115 120

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121 126 131 136

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137 142 147 152

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Ser Ala Thr Leu Glu Leu Asp Arg Leu Met Ala Ser Leu Ser Asp Phe	
153 158 163 168	
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Arg Val Gln Asn His Leu Pro Ala Ser Gly Pro Thr Gln Pro Pro Val	
169 174 179 184	
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Val Ser Ser Thr Asn Glu Gly Ser Pro Ser Pro Pro Glu Pro Thr Gly	
185 190 195 200	
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Lys Gly Ser Leu Asp Thr Met Leu Gly Leu Leu Gln Ser Asp Leu Ser	
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Lys Pro Ile Ala Gly Gln Val Val Thr Ala Leu Gly Arg Ala Trp His	
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Pro Glu His Phe Val Cys Gly Gly Cys Ser Thr Ala Leu Gly Gly Ser	
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Ser Phe Phe Glu Lys Asp Gly Ala Pro Phe Cys Pro Glu Cys Tyr Phe	
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Glu Gly Arg Pro Tyr Cys Arg Arg Asp Phe Leu Gln Leu Phe Ala Pro	
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Leu Ser Ala Leu Trp His Pro Asp Cys Phe Val Cys Arg Glu Cys Phe	
361 366 371 376	

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393 398 403 408

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409 414 419 424

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His Pro Asp His Phe Thr Cys Thr Phe Cys Leu Arg Pro Leu Thr Lys  
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Leu Lys Leu Phe Gly \*  
457 462

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Met Glu Met Pro Arg Lys Pro Arg Leu Thr Leu Phe Val Gln

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ttt Phe 31	tac Tyr	tac Tyr	cta Leu	ttg Leu	gaa Glu 36	gca Ala	gca Ala	gaa Glu	ggc Gly	cat His 41	gcc Ala	aaa Lys	gaa Glu	gga Gly	cag Gln 46	324
ggc Gly 47	att Ile	aaa Lys	acc Thr	gac Asp	att Ile 52	ccc Pro	agg Arg	tac Tyr	atc Ile	att Ile 57	agc Ser	caa Gln	ctg Leu	gga Gly	ctc Leu 62	372
aat Asn 63	aag Lys	gat Asp	ccc Pro	ttg Leu	gaa Glu 68	gaa Glu	atg Met	gct Ala	cat His	ttg Leu 73	gga Gly	aac Asn	tac Tyr	gat Asp	agt Ser 78	420
ggg Gly 79	aca Thr	gca Ala	gaa Glu	aca Thr	cca Pro 84	gaa Glu	aca Thr	gat Asp	gaa Glu	tca Ser 89	gtg Val	agt Ser	agc Ser	tct Ser	aat Asn 94	468
gcc Ala 95	tcc Ser	ctg Leu	aaa Lys	ctt Leu	cga Arg 100	agg Arg	aaa Lys	cct Pro	cgg Arg	gaa Glu 105	agt Ser	gat Asp	ttt Phe	gaa Glu	acg Thr 110	516
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Tyr Ile Ala Pro Glu Val Ile Leu Arg Gln Gly Tyr Gly Lys Pro Val	
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Gln Leu Glu Ser Glu Asp Asp Thr Ser Tyr Phe Asp Thr Arg Ser Glu	
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Ser	Asp	Ile	Tyr	Thr	Val	His	His	Ile	Val	Trp	Asn	Val	Glu	Glu	Gly	
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Ser	Pro	Ala	Cys	Gln	Ala	Gly	Leu	Lys	Ala	Gly	Asp	Leu	Ile	Thr	His	
719					724					729					734	
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Ile	Asn	Gly	Glu	Pro	Val	His	Gly	Leu	Val	His	Thr	Glu	Val	Ile	Glu	
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ctc	cta	ctg	aag	agt	ggg	aat	aag	gtg	tca	atc	act	act	acc	cca	ttt	2484
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751					756					761					766	
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Glu	Asn	Thr	Ser	Ile	Lys	Thr	Gly	Pro	Ala	Arg	Arg	Asn	Ser	Tyr	Lys	
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agc	cgg	atg	gtg	agg	cgg	agc	aag	aaa	tcc	aag	aag	aaa	gaa	agt	ctc	2580
Ser	Arg	Met	Val	Arg	Arg	Ser	Lys	Lys	Ser	Lys	Lys	Lys	Glu	Ser	Leu	
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gaa	agg	agg	aga	tct	ctt	ttc	aaa	aag	cta	gcc	aag	cag	cct	tct	cct	2628
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Ser	Gly	Glu	Ser	Leu	Pro	Gly	Ser	Pro	Thr	His	Ser	Leu	Ser	Pro	Arg	
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Ser	Pro	Thr	Pro	Ser	Tyr	Arg	Ser	Thr	Pro	Asp	Phe	Pro	Ser	Gly	Thr	
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Asn	Ser	Ser	Gln	Ser	Ser	Ser	Pro	Ser	Ser	Ser	Ala	Pro	Asn	Ser	Pro	
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Lys	Leu	Gly	Gly	Gln	Arg	Tyr	Arg	Ser	Gly	Arg	Arg	Lys	Ser	Ala	Gly	
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Pro Thr Ile Val Arg His Ile Val Arg Pro Lys Ser Ala Glu Pro Pro				
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Ser Tyr Gly Ser Asp Lys Lys His Leu Cys Ser Arg Lys His Ser Leu				
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Glu Val Thr Gln Glu Glu Val Gln Arg Glu Gln Ser Gln Arg Glu Ala				
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Pro Leu Gln Ser Leu Asp Glu Asn Val Cys Asp Val Pro Pro Leu Ser				
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Arg Ala Arg Pro Val Glu Gln Gly Cys Leu Lys Arg Pro Val Ser Arg				
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Lys Val Gly Arg Gln Glu Ser Val Asp Asp Leu Asp Arg Asp Lys Leu				
1055	1060	1065	1070	
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Lys Ala Lys Val Val Val Lys Lys Ala Asp Gly Phe Pro Glu Lys Gln				
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Glu Ser His Gln Lys Ser His Gly Pro Gly Ser Asp Leu Glu Asn Phe				
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Val Glu Arg Ser Ser Thr Phe Glu Asn Lys Ala Ser Met Gln Glu Ala				
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Pro Pro Leu Gly Ser Leu Leu Lys Asp Ala Leu His Lys Gln Ala Ser				
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Lys Asp Gly Pro Gly Glu Ala Arg Pro Pro Pro Arg Asp Asn Ser Ser	
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Thr Pro Gly Ser Gln Asn Lys Ala Ser Asp Gly Ile Gly Gln Gly Glu	
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Gly Gly Pro Ser Val Pro Leu His Thr Asp Arg Ala Pro Leu Asp Ala	
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Pro Val His Leu Pro Arg Pro Gly His Pro Gly Pro Ser Glu Pro Ala				
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Asp Gln Lys Leu Ser Ala Val Gly Glu Lys Gln Thr Leu Ser Pro Lys				
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His Pro Lys Pro Ser Thr Val Lys Asp Cys Pro Thr Leu Cys Lys Gln				
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Thr Asp Asn Arg Gln Thr Asp Lys Ser Pro Ser Gln Pro Ala Ala Asn				
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Pro Ala Glu Gly Asp Lys Leu Glu Ala Gly Leu Ser Phe Val His Ser				
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Gly Gln Ser Ser Phe Arg Ser Thr Ala Leu Pro Glu Lys Ser Leu Ser				
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Cys Ser Ser Ser Phe Pro Glu Thr Arg Ala Gly Val Arg Glu Ala Ser				
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Ala Ala Ser Ser Asp Thr Ser Ser Ala Lys Ala Ala Gly Gly Met Leu				
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Glu Leu Pro Ala Pro Ser Asn Arg Asp His Arg Lys Ala Gln Pro Ala				
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Gly Glu Gly Arg Thr His Met Thr Lys Ser Asp Ser Leu Pro Ser Phe				
2047	2052	2057	2062	



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Phe His Cys Leu Phe Ser Ser Arg Leu Gly Thr Pro Val Ser Pro Arg											
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cataataaaa catctagggtt tcattccttt gacatgttta tatcttttta atttaaattg				1235
tgttactggc ttaaaatatt ttgtgttctt acaatagaaa cgcttttaaat aaagtctttc				1295
agaataaacc aagtttttgt aaattttcaa ttcaataatt aaggtaatct ttaaaattgg				1355
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<210> 293  
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 <212> DNA  
 <213> Homo sapiens

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 <222> (230) .. (2164)

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tcccttctct gagacgggga ccaggggatg gcagccatgc acctgacagc ctggccccag	120
gaacctattg tttcagaagt cgggtgacct tgaggacgtg gctgtgtact tcaccaggc	180
ggaatgggat ggctgtccc ctgcacagag gacctgtac agggatgtg	235
	atg ctg
	Met Leu
	1

gag aat tat ggg aat gtg gca tcc ctg gga ttt cca ctt ctc aaa cct	283
Glu Asn Tyr Gly Asn Val Ala Ser Leu Gly Phe Pro Leu Leu Lys Pro	
3 8 13 18	
gct gtg atc tca caa ctg gag gga gga agt gag ctg ggg ggc tca tct	331
Ala Val Ile Ser Gln Leu Glu Gly Gly Ser Glu Leu Gly Gly Ser Ser	
19 24 29 34	
cca ctg gct gca gga aca ggc ctc cag ggc ctc cag act gta gat att	379
Pro Leu Ala Ala Gly Thr Gly Leu Gln Gly Leu Gln Thr Val Asp Ile	
35 40 45 50	
cag act gac aat gat ttg aca aag gaa atg tat gaa gga aaa gag aat	427
Gln Thr Asp Asn Asp Leu Thr Lys Glu Met Tyr Glu Gly Lys Glu Asn	
51 56 61 66	
gta tca ttt gaa ctt caa aga gac ttt tcc cag gaa aca gac ttt tca	475
Val Ser Phe Glu Leu Gln Arg Asp Phe Ser Gln Glu Thr Asp Phe Ser	
67 72 77 82	
gaa gcc tct ctt cta gag aaa caa cag gaa gtc cac tca gca gga aat	523
Glu Ala Ser Leu Leu Glu Lys Gln Gln Glu Val His Ser Ala Gly Asn	
83 88 93 98	
ata aag aag gag aag agc aac acc att gat gga aca gtg aaa gat gag	571
Ile Lys Lys Glu Lys Ser Asn Thr Ile Asp Gly Thr Val Lys Asp Glu	
99 104 109 114	
aca agc ccc gtg gag gag tgt ttt ttt agt caa agt tca aac tca tat	619
Thr Ser Pro Val Glu Glu Cys Phe Phe Ser Gln Ser Ser Asn Ser Tyr	
115 120 125 130	
cag tgt cat acc atc act gga gag cag ccc tct ggg tgt aca gga ttg	667
Gln Cys His Thr Ile Thr Gly Glu Gln Pro Ser Gly Cys Thr Gly Leu	
131 136 141 146	
ggg aaa tcc atc agc ttt gat aca aaa ctc gtg aag cat gaa ata att	715
Gly Lys Ser Ile Ser Phe Asp Thr Lys Leu Val Lys His Glu Ile Ile	
147 152 157 162	
aat tct gag gaa aga cct ttc aaa tgt gaa gaa tta gta gag ccc ttt	763
Asn Ser Glu Glu Arg Pro Phe Lys Cys Glu Glu Leu Val Glu Pro Phe	
163 168 173 178	
agg tgt gac tct caa ctt att caa cat caa gag aac aac act gag gaa	811
Arg Cys Asp Ser Gln Leu Ile Gln His Gln Glu Asn Asn Thr Glu Glu	
179 184 189 194	
aag cct tat cag tgt tcg gag tgt ggc aaa gct ttc agc att aat gag	859
Lys Pro Tyr Gln Cys Ser Glu Cys Gly Lys Ala Phe Ser Ile Asn Glu	
195 200 205 210	
aaa tta att tgg cat cag aga ctt cac agt ggg gag aaa ccc ttc aaa	907
Lys Leu Ile Trp His Gln Arg Leu His Ser Gly Glu Lys Pro Phe Lys	
211 216 221 226	
tgt gtg gag tgt ggg aaa agc ttc agc tac agt tcc cat tat atc aca	955

Cys 227	Val	Glu	Cys	Gly	Lys 232	Ser	Phe	Ser	Tyr	Ser 237	Ser	His	Tyr	Ile	Thr 242	
cat His 243	cag Gln	aca Thr	atc Ile	cac His	agt Ser 248	ggg Gly	gag Glu	aag Lys	ccc Pro	tat Tyr 253	cag Gln	tgt Cys	aag Lys	atg Met	tgt Cys 258	1003
ggg Gly 259	aag Lys	gcc Ala	ttc Phe	agt Ser	gtt Val 264	aat Asn	gga Gly	agc Ser	cta Leu	agt Ser 269	agg Arg	cat His	cag Gln	aga Arg	atc Ile 274	1051
cat His 275	acg Thr	gga Gly	gag Glu	aag Lys	ccc Pro 280	tat Tyr	cag Gln	tgc Cys	aag Lys	gaa Glu 285	tgt Cys	gga Gly	aat Asn	ggc Gly	ttc Phe 290	1099
agc Ser 291	tgt Cys	agt Ser	tct Ser	gca Ala	tat Tyr 296	att Ile	aca Thr	cat His	cag Gln	aga Arg 301	gtc Val	cac His	act Thr	gga Gly	gag Glu 306	1147
aaa Lys 307	cct Pro	tac Tyr	gag Glu	tgt Cys	aat Asn 312	gac Asp	tgt Cys	ggg Gly	aaa Lys	gcg Ala 317	ttc Phe	aat Asn	gtt Val	aat Asn	gca Ala 322	1195
aaa Lys 323	tta Leu	att Ile	caa Gln	cat His	cag Gln 328	aga Arg	atc Ile	cat His	act Thr	gga Gly 333	gag Glu	aaa Lys	cct Pro	tat Tyr	gaa Glu 338	1243
tgt Cys 339	aat Asn	gaa Glu	tgt Cys	gga Gly	aaa Lys 344	ggc Gly	ttc Phe	agg Arg	tgc Cys	agc Ser 349	tcc Ser	cag Gln	ctt Leu	agg Arg	cag Gln 354	1291
cat His 355	cag Gln	agc Ser	atc Ile	cac His	aca Thr 360	gga Gly	gaa Glu	aag Lys	ccc Pro	tat Tyr 365	cag Gln	tgt Cys	aaa Lys	gag Glu	tgt Cys 370	1339
gga Gly 371	aaa Lys	ggc Gly	ttc Phe	aat Asn	aat Asn 376	aat Asn	aca Thr	aaa Lys	ctc Leu	att Ile 381	cag Gln	cat His	cag Gln	aga Arg	atc Ile 386	1387
cac His 387	aca Thr	ggt Gly	gag Glu	aaa Lys	ccc Pro 392	tat Tyr	gaa Glu	tgc Cys	act Thr	gaa Glu 397	tgt Cys	gga Gly	aaa Lys	gcc Ala	ttc Phe 402	1435
agt Ser 403	gtc Val	aaa Lys	ggg Gly	aag Lys	tta Leu 408	atc Ile	caa Gln	cac His	cag Gln	aga Arg 413	att Ile	cac His	aca Thr	ggc Gly	gag Glu 418	1483
aaa Lys 419	ccc Pro	tat Tyr	gag Glu	tgt Cys	aat Asn 424	gaa Glu	tgc Cys	ggg Gly	aaa Lys	gcc Ala 429	ttc Phe	aga Arg	tgt Cys	aac Asn	tcc Ser 434	1531
caa Gln 435	ttt Phe	cgg Arg	cag Gln	cat His	ctg Leu 440	aga Arg	att Ile	cac His	act Thr	ggg Gly 445	gag Glu	aag Lys	ccc Pro	tat Tyr	gag Glu 450	1579
tgt Cys	aat Asn	gag Glu	tgt Cys	gga Gly	aag Lys	gcc Ala	ttc Phe	agc Ser	gtt Val	aat Asn	ggg Gly	aaa Lys	cta Leu	atg Met	cgg Arg	1627

451	456	461	466	
cat cag aga att cac	act ggg gag aaa cct	ttt gaa tgt aat gag	tgt	1675
His Gln Arg Ile His	Thr Gly Glu Lys Pro	Phe Glu Cys Asn Glu	Cys	
467	472	477	482	
ggg aga tgc ttt act	tct aaa aga aac cta	ctt gat cat cac cga	atc	1723
Gly Arg Cys Phe Thr	Ser Lys Arg Asn Leu	Leu Asp His His Arg	Ile	
483	488	493	498	
cat act gga gaa aag	ccc tat caa tgt aag	gaa tgt ggg aaa gcc	ttc	1771
His Thr Gly Glu Lys	Pro Tyr Gln Cys Lys	Glu Cys Gly Lys Ala	Phe	
499	504	509	514	
agt atc aat gcc aaa	cta act agg cat cag	agg ata cat act ggg	gag	1819
Ser Ile Asn Ala Lys	Leu Thr Arg His Gln	Arg Ile His Thr Gly	Glu	
515	520	525	530	
aaa cct ttc aaa tgt	atg gaa tgt gag aaa	gca ttc agc tgt agt	tct	1867
Lys Pro Phe Lys Cys	Met Glu Cys Glu Lys	Ala Phe Ser Cys Ser	Ser	
531	536	541	546	
aac tat att gtg cac	cag aga atc cat aca	gga gag aaa ccc ttt	cag	1915
Asn Tyr Ile Val His	Gln Arg Ile His Thr	Gly Glu Lys Pro Phe	Gln	
547	552	557	562	
tgt aag gag tgt gga	aaa gcc ttc cat gtt	aat gcc cat tta att	cgg	1963
Cys Lys Glu Cys Gly	Lys Ala Phe His Val	Asn Ala His Leu Ile	Arg	
563	568	573	578	
cat cag aga agc cac	act ggg gag aaa ccc	ttc aga tgt gtg gaa	tgt	2011
His Gln Arg Ser His	Thr Gly Glu Lys Pro	Phe Arg Cys Val Glu	Cys	
579	584	589	594	
ggc aaa ggc ttc agc	ttt agt tct gac tac	att ata cat cag aca	gtc	2059
Gly Lys Gly Phe Ser	Phe Ser Ser Asp Tyr	Ile Ile His Gln Thr	Val	
595	600	605	610	
cac act tgg aag aaa	ccc tat atg tgt agt	gtg tgt ggg aaa gca	ttc	2107
His Thr Trp Lys Lys	Pro Tyr Met Cys Ser	Val Cys Gly Lys Ala	Phe	
611	616	621	626	
agg ttt agc ttc cag	ctc agt cag cat cag	agt gtc cat agt gaa	gga	2155
Arg Phe Ser Phe Gln	Leu Ser Gln His Gln	Ser Val His Ser Glu	Gly	
627	632	637	642	
aaa tcc taa taatgag	aaagatatag aaaactctta	aggttaatgc caaaatggat		2211
Lys Ser *				
643				
caagtatcat cagattcatc	cattgaaaaa cctccaagag	ggcatgaata tggcagagtc		2271
ttcatatgga aacagttttt	attctattca gtttaaatca	ggaaaggatg accagttaaa		2331
gagaaacatc caaaaatagc	tttgttttgt accaacagga	attagaaaat ataataaaaa		2391
gatttcgttc ccagcagcat	caagaaaagt agatttttcta	gaaataaaca gttatggagg		2451

acttgatgg agaaatttaa gtcttcactg agggccactt tacaaaggaa atttgaataa 2511  
atggagagag agagaagcct tggtgttggga taggaaaacc cgtactaaag atactctacc 2571  
tacattaatt tatttgttta atttttgaca acaagcatgt attacttttg aaaagatgaa 2631  
aaataaagat ttattttaaaa aaaaaaaaaa 2659

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<212> DNA  
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<220>  
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<222> (53)..(352)

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cac gcg tac gta agc ttg gat cct cta gag cgg ccg cct act act act 103  
His Ala Tyr Val Ser Leu Asp Pro Leu Glu Arg Pro Pro Thr Thr Thr  
2 7 12 17  
  
aaa ttc gcg gcc gcg tcc gac cgc cgc cgc gcc gcc atc atg gac acc 151  
Lys Phe Ala Ala Ala Ser Asp Arg Arg Arg Ala Ala Ile Met Asp Thr  
18 23 28 33  
  
agc cgt gtg cag cct atc aag ctg gcc agg gtc acc aag gtc ctg ggc 199  
Ser Arg Val Gln Pro Ile Lys Leu Ala Arg Val Thr Lys Val Leu Gly  
34 39 44 49  
  
agg acc ggt tct cag gga cag tgc acg cag gtg cgc gtg gaa ttc atg 247  
Arg Thr Gly Ser Gln Gly Gln Cys Thr Gln Val Arg Val Glu Phe Met  
50 55 60 65  
  
gac gac acg agc cga tcc atc atc cgc aat gta aaa ggc ccc gtg cgc 295  
Asp Asp Thr Ser Arg Ser Ile Ile Arg Asn Val Lys Gly Pro Val Arg  
66 71 76 81  
  
gag ggc gac gtg ctc acc ctt ttg gag tca gag cga gaa gcc cgg agg 343  
Glu Gly Asp Val Leu Thr Leu Leu Glu Ser Glu Arg Glu Ala Arg Arg  
82 87 92 97  
  
ttg cgc tga gcttggc tgctcgtctg gtcttggatg tcgggttcga ccacttggcc 399  
Leu Arg \*  
98  
  
gatgggaatg gtctgtcaca atctgctcct tttttttgtc cgccacacgt aactgagatg 459  
ctccttttaa taaagcgttt gtgtttcaag ttaactcaga aaaaaaaaaa a 510

<210> 295  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (67)..(948)

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 Met Ala Asp Asp Ala Gly Ala Ala Gly Gly Pro Gly Gly Pro  
 1 5 10  
 ggt ggc cct ggg atg ggg aac cgc ggt ggc ttc cgc gga ggt ttc ggc 156  
 Gly Gly Pro Gly Met Gly Asn Arg Gly Gly Phe Arg Gly Gly Phe Gly  
 15 20 25 30  
 agt ggc atc cgg ggc cgg ggt cgc ggc cgt gga cgg ggc cgg ggc cga 204  
 Ser Gly Ile Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg  
 31 36 41 46  
 ggc cgc gga gct cgc gga ggc aag gcc gag gat aag gag tgg atg ccc 252  
 Gly Arg Gly Ala Arg Gly Gly Lys Ala Glu Asp Lys Glu Trp Met Pro  
 47 52 57 62  
 gtc acc aag ttg ggc cgc ttg gtc aag gac atg aag atc aag tcc ctg 300  
 Val Thr Lys Leu Gly Arg Leu Val Lys Asp Met Lys Ile Lys Ser Leu  
 63 68 73 78  
 gag gag atc tat ctc ttc tcc ctg ccc att aag gaa tca gag atc att 348  
 Glu Glu Ile Tyr Leu Phe Ser Leu Pro Ile Lys Glu Ser Glu Ile Ile  
 79 84 89 94  
 gat ttc ttc ctg ggg gcc tct ctc aag gat gag gtt ttg aag att atg 396  
 Asp Phe Phe Leu Gly Ala Ser Leu Lys Asp Glu Val Leu Lys Ile Met  
 95 100 105 110  
 cca gtg cag aag cag acc cgt gcc ggc cag cgc acc agg ttc aag gca 444  
 Pro Val Gln Lys Gln Thr Arg Ala Gly Gln Arg Thr Arg Phe Lys Ala  
 111 116 121 126  
 ttt gtt gct atc ggg gac tac aat ggc cac gtc ggt ctg ggt gtt aag 492  
 Phe Val Ala Ile Gly Asp Tyr Asn Gly His Val Gly Leu Gly Val Lys  
 127 132 137 142  
 tgc tcc aag gag gtg gcc acc gcc atc cgt ggg gcc atc atc ctg gcc 540  
 Cys Ser Lys Glu Val Ala Thr Ala Ile Arg Gly Ala Ile Ile Leu Ala  
 143 148 153 158  
 aag ctc tcc atc gtc ccc gtg cgc aga ggc tac tgg ggg aac aag atc 588

Lys	Leu	Ser	Ile	Val	Pro	Val	Arg	Arg	Gly	Tyr	Trp	Gly	Asn	Lys	Ile	
159					164					169					174	
ggc	aag	ccc	cac	act	gtc	cct	tgc	aag	gtg	aca	ggc	cgc	tgc	ggc	tct	636
Gly	Lys	Pro	His	Thr	Val	Pro	Cys	Lys	Val	Thr	Gly	Arg	Cys	Gly	Ser	
175					180					185					190	
gtg	ctg	gta	cgc	ctc	atc	cct	gca	ccc	agg	ggc	act	ggc	atc	gtc	tcc	684
Val	Leu	Val	Arg	Leu	Ile	Pro	Ala	Pro	Arg	Gly	Thr	Gly	Ile	Val	Ser	
191					196					201					206	
gca	cct	gtg	cct	aag	aag	ctg	ctc	atg	atg	gct	ggc	atc	gat	gac	tgc	732
Ala	Pro	Val	Pro	Lys	Lys	Leu	Leu	Met	Met	Ala	Gly	Ile	Asp	Asp	Cys	
207					212					217					222	
tac	acc	tca	gcc	cgg	ggc	tgc	act	gcc	acc	ctg	ggc	aac	ttc	gcc	aag	780
Tyr	Thr	Ser	Ala	Arg	Gly	Cys	Thr	Ala	Thr	Leu	Gly	Asn	Phe	Ala	Lys	
223					228					233					238	
gcc	acc	ttt	gat	gcc	att	tct	aag	acc	tac	agc	tac	ctg	acc	ccc	gac	828
Ala	Thr	Phe	Asp	Ala	Ile	Ser	Lys	Thr	Tyr	Ser	Tyr	Leu	Thr	Pro	Asp	
239					244					249					254	
ctc	tgg	aag	gag	act	gta	ttc	acc	aag	tct	ccc	tat	cag	gag	ttc	act	876
Leu	Trp	Lys	Glu	Thr	Val	Phe	Thr	Lys	Ser	Pro	Tyr	Gln	Glu	Phe	Thr	
255					260					265					270	
gac	cac	ctc	gtc	aag	acc	cac	acc	aga	gtc	tcc	gtg	cag	cgg	act	cag	924
Asp	His	Leu	Val	Lys	Thr	His	Thr	Arg	Val	Ser	Val	Gln	Arg	Thr	Gln	
271					276					281					286	
gct	cca	gct	gtg	gct	aca	aca	tag	ggtttttata	caagaaaaat	aaagtgaatt						978
Ala	Pro	Ala	Val	Ala	Thr	Thr	*									
287					292											
aagcgtgaaa	aaaaaaaaa															997

<210> 296  
 <211> 3323  
 <212> DNA  
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<220>  
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 <222> (162) .. (3323)

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gcatgagacc gtgagacgag agacgggtcg gggccgccga c atg ttt ggc cgc	173
	Met Phe Gly Arg

tcg cgg agc tgg gtg ggc ggg ggc cat ggc aag act tcc cgc aac atc	221
Ser Arg Ser Trp Val Gly Gly Gly His Gly Lys Thr Ser Arg Asn Ile	
5 10 15 20	
cac tcc ttg gac cac ctc aag tat ctg tac cac gtt ttg acc aaa aac	269
His Ser Leu Asp His Leu Lys Tyr Leu Tyr His Val Leu Thr Lys Asn	
21 26 31 36	
acc aca gtc aca gaa cag aac cgg aac ctg cta gtg gag acc atc cgt	317
Thr Thr Val Thr Glu Gln Asn Arg Asn Leu Leu Val Glu Thr Ile Arg	
37 42 47 52	
tcc atc act gag atc ctg atc tgg gga gat caa aat gac agc tct gta	365
Ser Ile Thr Glu Ile Leu Ile Trp Gly Asp Gln Asn Asp Ser Ser Val	
53 58 63 68	
ttt gac ttc ttc ctg gag aag aat atg ttt gtt ttc ttc ttg aac atc	413
Phe Asp Phe Phe Leu Glu Lys Asn Met Phe Val Phe Phe Leu Asn Ile	
69 74 79 84	
ttg cgg caa aag tgc ggc cgt tac gtg tgc gtt cag ctg ctg cag acc	461
Leu Arg Gln Lys Ser Gly Arg Tyr Val Cys Val Gln Leu Leu Gln Thr	
85 90 95 100	
ttg aac atc ctc ttt gag aac atc agt cac gag acc tca ctt tat tat	509
Leu Asn Ile Leu Phe Glu Asn Ile Ser His Glu Thr Ser Leu Tyr Tyr	
101 106 111 116	
ttg ctc tca aat aac tac gta aat tct atc atc gtt cat aaa ttt gac	557
Leu Leu Ser Asn Asn Tyr Val Asn Ser Ile Ile Val His Lys Phe Asp	
117 122 127 132	
ttt tct gat gag gag att atg gcc tat tat ata tgc ttc ctg aaa aca	605
Phe Ser Asp Glu Glu Ile Met Ala Tyr Tyr Ile Ser Phe Leu Lys Thr	
133 138 143 148	
ctt tgc tta aaa ctc aac aac cac act gtc cat ttc ttt tat aat gag	653
Leu Ser Leu Lys Leu Asn Asn His Thr Val His Phe Phe Tyr Asn Glu	
149 154 159 164	
cac acc aat gac ttt gcc ctg tac aca gaa gcc atc aag ttt ttc aac	701
His Thr Asn Asp Phe Ala Leu Tyr Thr Glu Ala Ile Lys Phe Phe Asn	
165 170 175 180	
cac cct gaa agc atg gtt aga att gct gta aga acc ata act ttg aat	749
His Pro Glu Ser Met Val Arg Ile Ala Val Arg Thr Ile Thr Leu Asn	
181 186 191 196	
gtc tat aaa gtg tca ttg gat aac cag gcc atg ctg cac tac atc cga	797
Val Tyr Lys Val Ser Leu Asp Asn Gln Ala Met Leu His Tyr Ile Arg	
197 202 207 212	
gat aaa act gct gtt cct tac ttc tcc aat ttg gtc tgg ttc att ggg	845
Asp Lys Thr Ala Val Pro Tyr Phe Ser Asn Leu Val Trp Phe Ile Gly	
213 218 223 228	

agc cat gtg atc gaa ctc gat gac tgc gtg cag act gat gag gag cat	893
Ser His Val Ile Glu Leu Asp Asp Cys Val Gln Thr Asp Glu Glu His	
229 234 239 244	
cgg aat cgg ggt aaa ctg agt gat ctg gtg gca gag cac cta gac cac	941
Arg Asn Arg Gly Lys Leu Ser Asp Leu Val Ala Glu His Leu Asp His	
245 250 255 260	
ctg cac tat ctc aat gac atc ctg atc atc aac tgt gag ttc ctc aac	989
Leu His Tyr Leu Asn Asp Ile Leu Ile Ile Asn Cys Glu Phe Leu Asn	
261 266 271 276	
gat gtg ctc act gac cac ctg ctc aac agg ctc ttc ctg ccc ctc tac	1037
Asp Val Leu Thr Asp His Leu Leu Asn Arg Leu Phe Leu Pro Leu Tyr	
277 282 287 292	
gtg tac tca ctg gag aac cag gac aag gga gga gaa cgg ccg aaa att	1085
Val Tyr Ser Leu Glu Asn Gln Asp Lys Gly Gly Glu Arg Pro Lys Ile	
293 298 303 308	
agc ctg ccg gtg tct ctt tat ctt ctg tca cag gtc ttc tta att ata	1133
Ser Leu Pro Val Ser Leu Tyr Leu Leu Ser Gln Val Phe Leu Ile Ile	
309 314 319 324	
cat cat gca ccg ctg gtg aac tcg tta gct gaa gtc att ctg aat ggt	1181
His His Ala Pro Leu Val Asn Ser Leu Ala Glu Val Ile Leu Asn Gly	
325 330 335 340	
gat ctg tct gag atg tac gct aag act gaa cag gat att cag aga agt	1229
Asp Leu Ser Glu Met Tyr Ala Lys Thr Glu Gln Asp Ile Gln Arg Ser	
341 346 351 356	
tct gcc aag ccc agc att cgg tgc ttc att aaa ccc acc gag aca ctc	1277
Ser Ala Lys Pro Ser Ile Arg Cys Phe Ile Lys Pro Thr Glu Thr Leu	
357 362 367 372	
gag cgg tcc ctt gag atg aac aag cac aag ggc aag agg cgg gtg caa	1325
Glu Arg Ser Leu Glu Met Asn Lys His Lys Gly Lys Arg Arg Val Gln	
373 378 383 388	
aag aga ccc aac tac aaa aac gtt ggg gaa gaa gaa gat gag gag aaa	1373
Lys Arg Pro Asn Tyr Lys Asn Val Gly Glu Glu Glu Asp Glu Glu Lys	
389 394 399 404	
ggg ccc acc gag gat gcc caa gaa gac gcc gag aag gct aaa ggt aca	1421
Gly Pro Thr Glu Asp Ala Gln Glu Asp Ala Glu Lys Ala Lys Gly Thr	
405 410 415 420	
gag ggt ggt tca aaa ggc atc aag acg agt ggg gag agt gaa gag atc	1469
Glu Gly Gly Ser Lys Gly Ile Lys Thr Ser Gly Glu Ser Glu Glu Ile	
421 426 431 436	
gag atg gtg atc atg gag cgt agc aag ctc tca gag ctg gcc gcc agc	1517
Glu Met Val Ile Met Glu Arg Ser Lys Leu Ser Glu Leu Ala Ala Ser	
437 442 447 452	
acc tcc gtg cag gag cag aac acc acg gac gag gag aaa agc gcc gcc	1565

Thr	Ser	Val	Gln	Glu	Gln	Asn	Thr	Thr	Asp	Glu	Glu	Lys	Ser	Ala	Ala		
453					458					463					468		
gcc	acc	tgc	tct	gag	agc	acg	caa	tgg	agc	aga	ccc	ttc	ctg	gat	atg	1613	
Ala	Thr	Cys	Ser	Glu	Ser	Thr	Gln	Trp	Ser	Arg	Pro	Phe	Leu	Asp	Met		
469					474				479						484		
gtg	tac	cac	gcg	ctg	gac	agc	ccg	gat	gat	gat	tac	cat	gcc	ctg	ttc	1661	
Val	Tyr	His	Ala	Leu	Asp	Ser	Pro	Asp	Asp	Asp	Tyr	His	Ala	Leu	Phe		
485					490				495						500		
gtg	ctc	tgc	ctc	ctc	tat	gcc	atg	tct	cat	aat	aaa	ggc	atg	gat	cct	1709	
Val	Leu	Cys	Leu	Leu	Tyr	Ala	Met	Ser	His	Asn	Lys	Gly	Met	Asp	Pro		
501					506					511					516		
gaa	aaa	tta	gag	cga	atc	cag	ctc	ccc	gtg	cca	aat	gcg	gcc	gag	aag	1757	
Glu	Lys	Leu	Glu	Arg	Ile	Gln	Leu	Pro	Val	Pro	Asn	Ala	Ala	Glu	Lys		
517					522					527					532		
acc	acc	tac	aac	cac	ccg	cta	gct	gaa	aga	ctc	atc	agg	atc	atg	aac	1805	
Thr	Thr	Tyr	Asn	His	Pro	Leu	Ala	Glu	Arg	Leu	Ile	Arg	Ile	Met	Asn		
533					538					543					548		
aac	gct	gcc	cag	cca	gat	ggg	aag	atc	cgg	ctg	gcg	acg	ctg	gag	ctg	1853	
Asn	Ala	Ala	Gln	Pro	Asp	Gly	Lys	Ile	Arg	Leu	Ala	Thr	Leu	Glu	Leu		
549					554					559					564		
agc	tgc	ctg	ctt	ctg	aag	cag	caa	gtc	ctg	atg	agt	gct	ggc	tgc	atc	1901	
Ser	Cys	Leu	Leu	Leu	Lys	Gln	Gln	Val	Leu	Met	Ser	Ala	Gly	Cys	Ile		
565					570					575					580		
atg	aag	gac	gtg	cac	ctg	gcc	tgc	ctg	gag	ggt	gcg	aga	gaa	gaa	agt	1949	
Met	Lys	Asp	Val	His	Leu	Ala	Cys	Leu	Glu	Gly	Ala	Arg	Glu	Glu	Ser		
581					586					591					596		
gtt	cac	ctt	gta	cga	cat	ttt	tat	aag	gga	gaa	gac	att	ttt	ttg	gac	1997	
Val	His	Leu	Val	Arg	His	Phe	Tyr	Lys	Gly	Glu	Asp	Ile	Phe	Leu	Asp		
597					602					607					612		
atg	ttt	gaa	gat	gag	tat	agg	agc	atg	aca	atg	aag	ccc	atg	aac	gtg	2045	
Met	Phe	Glu	Asp	Glu	Tyr	Arg	Ser	Met	Thr	Met	Lys	Pro	Met	Asn	Val		
613					618					623					628		
gaa	tat	ctc	atg	atg	gac	gcc	tcc	atc	ctg	ctg	ccc	cca	aca	ggc	acg	2093	
Glu	Tyr	Leu	Met	Met	Asp	Ala	Ser	Ile	Leu	Leu	Pro	Pro	Thr	Gly	Thr		
629					634					639					644		
cca	ctg	acg	ggc	att	gac	ttc	gtg	aag	cgg	ctg	ccg	tgt	ggc	gat	gtg	2141	
Pro	Leu	Thr	Gly	Ile	Asp	Phe	Val	Lys	Arg	Leu	Pro	Cys	Gly	Asp	Val		
645					650					655					660		
gag	aag	acc	cgg	cgg	gcc	atc	cgg	gtg	ttc	ttc	atg	ctg	cgt	tcc	ctg	2189	
Glu	Lys	Thr	Arg	Arg	Ala	Ile	Arg	Val	Phe	Phe	Met	Leu	Arg	Ser	Leu		
661					666					671					676		
tca	ctg	caa	ttg	cga	ggg	gag	cct	gag	aca	cag	ttg	ccg	ctg	act	cgg	2237	
Ser	Leu	Gln	Leu	Arg	Gly	Glu	Pro	Glu	Thr	Gln	Leu	Pro	Leu	Thr	Arg		

677	682	687	692	
gag gag gac ctg atc	aag act gat gat	gtc ctg gat ctg	aat aac agc	2285
Glu Glu Asp Leu Ile	Lys Thr Asp Asp	Val Leu Asp Leu	Asn Asn Ser	
693	698	703	708	
gac ttg att gca tgt	aca gtg atc acc	aag gat ggc ggc	atg gtc cag	2333
Asp Leu Ile Ala Cys	Thr Val Ile Thr	Lys Asp Gly Gly	Met Val Gln	
709	714	719	724	
cga ttc ctg gct gtg	gat att tac cag	atg agt ttg gtg	gag cct gat	2381
Arg Phe Leu Ala Val	Asp Ile Tyr Gln	Met Ser Leu Val	Glu Pro Asp	
725	730	735	740	
gtg tcc agg ctt ggc	tgg gga gtg gtc	aag ttt gca ggc	cta ttg cag	2429
Val Ser Arg Leu Gly	Trp Gly Val Val	Lys Phe Ala Gly	Leu Leu Gln	
741	746	751	756	
gac atg cag gtg act	ggc gtg gag gac	gac agc cgt gcc	ctg aac atc	2477
Asp Met Gln Val Thr	Gly Val Glu Asp	Asp Ser Arg Ala	Leu Asn Ile	
757	762	767	772	
acc atc cac aag cct	gcg tcc agc ccc	cat tcc aag ccc	ttc ccc atc	2525
Thr Ile His Lys Pro	Ala Ser Ser Pro	His Ser Lys Pro	Phe Pro Ile	
773	778	783	788	
ctc cag gcc acc ttc	atc ttc tca gac	cac atc cgc tgc	atc atc gcc	2573
Leu Gln Ala Thr Phe	Ile Phe Ser Asp	His Ile Arg Cys	Ile Ile Ala	
789	794	799	804	
aag cag cgc ctg gcc	aaa ggc cgc atc	cag gca agg cgc	atg aag atg	2621
Lys Gln Arg Leu Ala	Lys Gly Arg Ile	Gln Ala Arg Arg	Met Lys Met	
805	810	815	820	
cag aga ata gct gcc	ctc ctg gac ctc	cca atc cag ccc	acc act gaa	2669
Gln Arg Ile Ala Ala	Leu Leu Asp Leu	Pro Ile Gln Pro	Thr Thr Glu	
821	826	831	836	
gtc ctg ggg ttt gga	ctc ggc tcc tcc	acc tcc act cag	cac ctg cct	2717
Val Leu Gly Phe Gly	Leu Gly Ser Ser	Thr Ser Thr Gln	His Leu Pro	
837	842	847	852	
ttc cgc ttc tac gac	cag ggg cgc cgg	ggc agc agc gac	ccc aca gtg	2765
Phe Arg Phe Tyr Asp	Gln Gly Arg Arg	Gly Ser Ser Asp	Pro Thr Val	
853	858	863	868	
cag cgc tcc gtg ttt	gca tgc gtg gac	aag gtg cca ggc	ttc gcc gtg	2813
Gln Arg Ser Val Phe	Ala Ser Val Asp	Lys Val Pro Gly	Phe Ala Val	
869	874	879	884	
gcc cag tgc ata aac	cag cac agc tcc	ccg tcc ctg tcc	tca cag tgc	2861
Ala Gln Cys Ile Asn	Gln His Ser Ser	Pro Ser Leu Ser	Ser Gln Ser	
885	890	895	900	
cca ccc tcc gcc agc	ggg agc ccc agc	ggc agc ggg agc	acc agc cac	2909
Pro Pro Ser Ala Ser	Gly Ser Pro Ser	Gly Ser Gly Ser	Thr Ser His	
901	906	911	916	

tgc gac tct gga ggc acc agc tcg tcc tcc acc ccc tcc aca gcc cag	2957
Cys Asp Ser Gly Gly Thr Ser Ser Ser Ser Thr Pro Ser Thr Ala Gln	
917 922 927 932	
agt cca gca gat gcc ccc atg agt cca gaa ctg cct aag cct cac ctt	3005
Ser Pro Ala Asp Ala Pro Met Ser Pro Glu Leu Pro Lys Pro His Leu	
933 938 943 948	
cct gac cag ttg gta atc gtc aac gaa acg gaa gca gac tct aag ccc	3053
Pro Asp Gln Leu Val Ile Val Asn Glu Thr Glu Ala Asp Ser Lys Pro	
949 954 959 964	
agc aag aac gtg gcc agg agc gca gcc gtg gag aca gcc agc ctg tcc	3101
Ser Lys Asn Val Ala Arg Ser Ala Ala Val Glu Thr Ala Ser Leu Ser	
965 970 975 980	
ccc agc ctc gtc cct gcc cgg cag ccc acc att tcc ctg ctc tgc gag	3149
Pro Ser Leu Val Pro Ala Arg Gln Pro Thr Ile Ser Leu Leu Cys Glu	
981 986 991 996	
gac acg gct gac acg ctg agc gtc gaa tcg ctg acc ctt gtc ccc cca	3197
Asp Thr Ala Asp Thr Leu Ser Val Glu Ser Leu Thr Leu Val Pro Pro	
997 1002 1007 1012	
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Val Asp Pro His Ser Leu Arg Ser Leu Thr Gly Met Pro Pro Leu Ser	
1013 1018 1023 1028	
acg ccg gct gcc gcc tgc aca gag ccc gtg ggc gaa gag gct gca tgt	3293
Thr Pro Ala Ala Ala Cys Thr Glu Pro Val Gly Glu Glu Ala Ala Cys	
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1045 1050	

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gccaaaaata ctgagtaact tcacattcag agggactgtt tcttctctct atatatagca	180



14	19	24	29	
gag ctg gac cag agg acg gaa gat aag aaa gca gag att gac atc ctg				385
Glu Leu Asp Gln Arg Thr Glu Asp Lys Lys Ala Glu Ile Asp Ile Leu				
30	35	40	45	
gct gca gag tac atc tcc acg gtg aag acg ctg tct cca gac cag cgc				433
Ala Ala Glu Tyr Ile Ser Thr Val Lys Thr Leu Ser Pro Asp Gln Arg				
46	51	56	61	
gtg gag cgc ctg cag aag atc cag aac gcc tac agc aag tgc aag gaa				481
Val Glu Arg Leu Gln Lys Ile Gln Asn Ala Tyr Ser Lys Cys Lys Glu				
62	67	72	77	
tac agt gac gac aaa gtg cag ctg gcc atg cag acc tac gag atg gtg				529
Tyr Ser Asp Asp Lys Val Gln Leu Ala Met Gln Thr Tyr Glu Met Val				
78	83	88	93	
gat aaa cac att cga agg ctt gat gca gac ctg gcg cgc ttt gaa gca				577
Asp Lys His Ile Arg Arg Leu Asp Ala Asp Leu Ala Arg Phe Glu Ala				
94	99	104	109	
gat ctg aag gac aag atg gag ggc agt gat ttt gaa agc tcc gga ggg				625
Asp Leu Lys Asp Lys Met Glu Gly Ser Asp Phe Glu Ser Ser Gly Gly				
110	115	120	125	
cga ggg tta aaa aaa ggc ctg cgt cag aaa gaa aaa aga ggg tcc cgg				673
Arg Gly Leu Lys Lys Gly Leu Arg Gln Lys Glu Lys Arg Gly Ser Arg				
126	131	136	141	
ggc cga ggc agg agg aca tca gag gaa gac aca cca aag aaa aag aag				721
Gly Arg Gly Arg Arg Thr Ser Glu Glu Asp Thr Pro Lys Lys Lys Lys				
142	147	152	157	
cac aaa gga ggg tct gag ttc act gac acc atc ctg tcc gtg cac ccc				769
His Lys Gly Gly Ser Glu Phe Thr Asp Thr Ile Leu Ser Val His Pro				
158	163	168	173	
tct gat gtg ctg gac atg ccc gtg gac cca aac gaa ccc acg tac tgc				817
Ser Asp Val Leu Asp Met Pro Val Asp Pro Asn Glu Pro Thr Tyr Cys				
174	179	184	189	
ctg tgc cac cag gtc tcc tat ggg gag atg att ggc tgt gac aat cca				865
Leu Cys His Gln Val Ser Tyr Gly Glu Met Ile Gly Cys Asp Asn Pro				
190	195	200	205	
gac tgt cca att gag tgg ttt cac ttt gcc tgc gtg gac ctt acc acg				913
Asp Cys Pro Ile Glu Trp Phe His Phe Ala Cys Val Asp Leu Thr Thr				
206	211	216	221	
aaa ccc aaa gga aaa tga tttcat ttaaataaaa acctgtagtc tgggcaacat				967
Lys Pro Lys Gly Lys *				
222	227			
cgggagaccc caactctaca aaaaatacaaa aaattagtgct ctgtcctctt agccacagtg				1027
tgtgctgccc cactagggac aggaggatgg tgagcaacgt gttgttgaca gaggccaatg				1087

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 Met Pro Ala Val Arg Val Trp Asp  
 1 5  
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 Val Ala Glu His Ser Gln Val Ala Glu Leu Gln Glu His Lys Tyr Gly  
 9 14 19 24  
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 Val Ala Cys Val Ala Phe Ser Pro Ser Ala Lys Tyr Ile Val Ser Val  
 25 30 35 40  
 ggc tac cag cat gac atg atc gtc aac gtg tgg gcc tgg aag aaa aac 255  
 Gly Tyr Gln His Asp Met Ile Val Asn Val Trp Ala Trp Lys Lys Asn  
 41 46 51 56  
 att gtg gtg gcc tcc aac aag gtg tcc agt cgg gtg aca gca gtg tcc 303  
 Ile Val Val Ala Ser Asn Lys Val Ser Ser Arg Val Thr Ala Val Ser  
 57 62 67 72  
 ttc tct gag gat tgc agc tac ttt gtc act gca ggc aac cga cac atc 351  
 Phe Ser Glu Asp Cys Ser Tyr Phe Val Thr Ala Gly Asn Arg His Ile  
 73 78 83 88  
 aaa ttc tgg tat ctc gat gac agc aag acc tca aag gtg aat gcc act 399  
 Lys Phe Trp Tyr Leu Asp Asp Ser Lys Thr Ser Lys Val Asn Ala Thr  
 89 94 99 104

gtg ccc ttg ctg ggc cgc tca ggg ctg ctg gga gag cta cgg aac aac	447
Val Pro Leu Leu Gly Arg Ser Gly Leu Leu Gly Glu Leu Arg Asn Asn	
105 110 115 120	
cta ttc act gat gtg gcc tgt ggc aga gga aaa aag gcg gac agt acc	495
Leu Phe Thr Asp Val Ala Cys Gly Arg Gly Lys Lys Ala Asp Ser Thr	
121 126 131 136	
ttc tgc atc acg tcc tca ggg ctg ctg tgc gag ttc agt gat cga agg	543
Phe Cys Ile Thr Ser Ser Gly Leu Leu Cys Glu Phe Ser Asp Arg Arg	
137 142 147 152	
ctt ttg gac aag tgg gtg gag ctg agg gtc tac ccc gag gtg aag gat	591
Leu Leu Asp Lys Trp Val Glu Leu Arg Val Tyr Pro Glu Val Lys Asp	
153 158 163 168	
agt aac cag gcc tgc ctg ccc ccc agt tcc ttt att acc tgc tcc tca	639
Ser Asn Gln Ala Cys Leu Pro Pro Ser Ser Phe Ile Thr Cys Ser Ser	
169 174 179 184	
gac aac acc atc cgc ctg tgg aac aca gag agc tcc ggg gtg cat ggc	687
Asp Asn Thr Ile Arg Leu Trp Asn Thr Glu Ser Ser Gly Val His Gly	
185 190 195 200	
tcc acc ctc cac cga aac atc ctc agc agt gac ctc att aaa atc atc	735
Ser Thr Leu His Arg Asn Ile Leu Ser Ser Asp Leu Ile Lys Ile Ile	
201 206 211 216	
tat gtg gat ggg aac acc cag gcc ctg ctg gac aca gag ctg cct gga	783
Tyr Val Asp Gly Asn Thr Gln Ala Leu Leu Asp Thr Glu Leu Pro Gly	
217 222 227 232	
gga gac aaa gct gat gca tcc ctg ttg gat ccc cgc gtg ggc atc cgc	831
Gly Asp Lys Ala Asp Ala Ser Leu Leu Asp Pro Arg Val Gly Ile Arg	
233 238 243 248	
tcg gtg tgt gtc agc ccc aat gga cag cat cta gca tca ggg gac cgt	879
Ser Val Cys Val Ser Pro Asn Gly Gln His Leu Ala Ser Gly Asp Arg	
249 254 259 264	
atg ggc aca ctt agg gtg cac gaa ctt cag tcc ctg agt gag atg ctg	927
Met Gly Thr Leu Arg Val His Glu Leu Gln Ser Leu Ser Glu Met Leu	
265 270 275 280	
aag gtg gag gcc cat gac tct gag att ctg tgc ctg gag tat tct aag	975
Lys Val Glu Ala His Asp Ser Glu Ile Leu Cys Leu Glu Tyr Ser Lys	
281 286 291 296	
cca gac aca ggt ctg aaa ctg cta gca tcg gcg agc cgg gac cgg ctg	1023
Pro Asp Thr Gly Leu Lys Leu Leu Ala Ser Ala Ser Arg Asp Arg Leu	
297 302 307 312	
atc cat gtg ctg gat gcc ggg cgg gag tac agc cta cag cag acg ctg	1071
Ile His Val Leu Asp Ala Gly Arg Glu Tyr Ser Leu Gln Gln Thr Leu	
313 318 323 328	

gac gaa cac tca tcc tcc atc act gct gtc aag ttt gca gcc agt gat	1119
Asp Glu His Ser Ser Ser Ile Thr Ala Val Lys Phe Ala Ala Ser Asp	
329 334 339 344	
ggg caa gtc cgc atg atc agc tgt gga gca gac aag agc atc tac ttc	1167
Gly Gln Val Arg Met Ile Ser Cys Gly Ala Asp Lys Ser Ile Tyr Phe	
345 350 355 360	
cgc act gcg cag aag tct gga gat gga gtg cag ttc aca cgg aca cac	1215
Arg Thr Ala Gln Lys Ser Gly Asp Gly Val Gln Phe Thr Arg Thr His	
361 366 371 376	
cac gtg gtg cgg aag acg acc ctc tat gac atg gat gtg gag ccc agc	1263
His Val Val Arg Lys Thr Thr Leu Tyr Asp Met Asp Val Glu Pro Ser	
377 382 387 392	
tgg aag tac acg gct atc ggc tgc cag gac cga aat att cgg ata ttt	1311
Trp Lys Tyr Thr Ala Ile Gly Cys Gln Asp Arg Asn Ile Arg Ile Phe	
393 398 403 408	
aac atc agc agt gga aag cag aag aag ctg ttt aaa ggg tca cag ggt	1359
Asn Ile Ser Ser Gly Lys Gln Lys Lys Leu Phe Lys Gly Ser Gln Gly	
409 414 419 424	
gag gac ggc aca ctc att aag gtg cag aca gac ccc tca ggg atc tac	1407
Glu Asp Gly Thr Leu Ile Lys Val Gln Thr Asp Pro Ser Gly Ile Tyr	
425 430 435 440	
att gcc acc agc tgt tct gac aag aat ctc tcc att ttt gac ttc tcc	1455
Ile Ala Thr Ser Cys Ser Asp Lys Asn Leu Ser Ile Phe Asp Phe Ser	
441 446 451 456	
tca ggc gag tgc gtg gcc acc atg ttt ggc cac tca gag att gtc act	1503
Ser Gly Glu Cys Val Ala Thr Met Phe Gly His Ser Glu Ile Val Thr	
457 462 467 472	
ggc atg aaa ttt agt aat gat tgt aaa cat ctc atc tct gtg tct ggg	1551
Gly Met Lys Phe Ser Asn Asp Cys Lys His Leu Ile Ser Val Ser Gly	
473 478 483 488	
gac agc tgc ata ttt gtg tgg cgc ctg agc tct gag atg acc atc agc	1599
Asp Ser Cys Ile Phe Val Trp Arg Leu Ser Ser Glu Met Thr Ile Ser	
489 494 499 504	
atg agg cag cgt ctg gcc gag ttg cgc cag cgt cag cgg ggc ggc aag	1647
Met Arg Gln Arg Leu Ala Glu Leu Arg Gln Arg Gln Arg Gly Gly Lys	
505 510 515 520	
cag caa gga cca tcc tct ccc caa agg gct tct gga ccc aac cgg cac	1695
Gln Gln Gly Pro Ser Ser Pro Gln Arg Ala Ser Gly Pro Asn Arg His	
521 526 531 536	
cag gcc cca tca atg ctg tct cct gga ccg gct ctc tca tca gac agt	1743
Gln Ala Pro Ser Met Leu Ser Pro Gly Pro Ala Leu Ser Ser Asp Ser	
537 542 547 552	
gac aag gag gga gaa gat gag ggg act gaa gaa gaa ctt cca gca ctg	1791

Asp Lys Glu Gly Glu Asp Glu Gly Thr Glu Glu Glu Leu Pro Ala Leu	553	558	563	568	
ccc gtc ctt gcc aag agt acc aag aag gca ctg gcc tcg gtc ccc agc	1839				
Pro Val Leu Ala Lys Ser Thr Lys Lys Ala Leu Ala Ser Val Pro Ser	569	574	579	584	
cca gct ttg ccc cga agc ctg tcc cac tgg gag atg agt cgg gca cag	1887				
Pro Ala Leu Pro Arg Ser Leu Ser His Trp Glu Met Ser Arg Ala Gln	585	590	595	600	
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Glu Ser Val Gly Phe Leu Asp Pro Ala Pro Ala Ala Asn Pro Gly Pro	601	606	611	616	
aga aga aga ggg cgc tgg gtt cag cca ggt gtg gaa ctg agc gtt aga	1983				
Arg Arg Arg Gly Arg Trp Val Gln Pro Gly Val Glu Leu Ser Val Arg	617	622	627	632	
tcc atg ctg gat ctg cgg cag ctg gaa aca ctg gcc cca agc ctg cag	2031				
Ser Met Leu Asp Leu Arg Gln Leu Glu Thr Leu Ala Pro Ser Leu Gln	633	638	643	648	
gac cct agc cag gac tcg ctg gcc atc atc cca tct ggt ccc agg aag	2079				
Asp Pro Ser Gln Asp Ser Leu Ala Ile Ile Pro Ser Gly Pro Arg Lys	649	654	659	664	
cat ggg cag gag gcc ctt gag act tca ctc act agc cag aat gaa aag	2127				
His Gly Gln Glu Ala Leu Glu Thr Ser Leu Thr Ser Gln Asn Glu Lys	665	670	675	680	
ccc cct cgg cct cag gct tcc caa cct tgt tcc tat ccc cat att atc	2175				
Pro Pro Arg Pro Gln Ala Ser Gln Pro Cys Ser Tyr Pro His Ile Ile	681	686	691	696	
cga tta ttg tca caa gag gaa ggg gtc ttt gcc caa gat ctg gaa cct	2223				
Arg Leu Leu Ser Gln Glu Glu Gly Val Phe Ala Gln Asp Leu Glu Pro	697	702	707	712	
gca ccc att gaa gat ggt att gtc tac ccg gag ccg agt gac aac ccc	2271				
Ala Pro Ile Glu Asp Gly Ile Val Tyr Pro Glu Pro Ser Asp Asn Pro	713	718	723	728	
acc atg gat acc agt gag ttc caa gtg cag gct cca gcc cgg gga act	2319				
Thr Met Asp Thr Ser Glu Phe Gln Val Gln Ala Pro Ala Arg Gly Thr	729	734	739	744	
ctg gga aga gtg tac cca ggc agc agg agc tca gaa aag cac agc cct	2367				
Leu Gly Arg Val Tyr Pro Gly Ser Arg Ser Ser Glu Lys His Ser Pro	745	750	755	760	
gac agt gcc tgc tct gtg gat tac agc agc agc tgc ctt tcc agc ccg	2415				
Asp Ser Ala Cys Ser Val Asp Tyr Ser Ser Ser Cys Leu Ser Ser Pro	761	766	771	776	
gag cac ccc act gaa gac tct gag agc acg gag ccc ctc agt gtg gat	2463				
Glu His Pro Thr Glu Asp Ser Glu Ser Thr Glu Pro Leu Ser Val Asp					

777	782	787	792	
ggc atc tcc tca gac	ctt gaa gag cca gct	gag ggt gat gaa gaa gag		2511
Gly Ile Ser Ser Asp	Leu Glu Glu Pro Ala	Glu Gly Asp Glu Glu Glu		
793	798	803	808	
gaa gaa gag gag gga	ggc atg ggc ccc tat	ggg cta cag gag ggc agc		2559
Glu Glu Glu Glu Gly	Gly Met Gly Pro Tyr	Gly Leu Gln Glu Gly Ser		
809	814	819	824	
ccc cag act cca gac	cag gag cag ttt cta	aaa cag cac ttt gag act		2607
Pro Gln Thr Pro Asp	Gln Glu Gln Phe Leu	Lys Gln His Phe Glu Thr		
825	830	835	840	
ctg gcc agt gga gct	gct cca ggg gcc cca	gtg cag gtc cca gag agg		2655
Leu Ala Ser Gly Ala	Ala Pro Gly Ala Pro	Val Gln Val Pro Glu Arg		
841	846	851	856	
tca gag tct cgg agt	atc tct tca cga ttc	ctg ttg caa gta cag acc		2703
Ser Glu Ser Arg Ser	Ile Ser Ser Arg Phe	Leu Leu Gln Val Gln Thr		
857	862	867	872	
cgc cca ctc agg gaa	cca tcc cca tcc tcc	tca agc ctg gca ctg atg		2751
Arg Pro Leu Arg Glu	Pro Ser Pro Ser Ser	Ser Ser Leu Ala Leu Met		
873	878	883	888	
tcg aga cca gcc cag	gtg cca cag gca tct	ggg gag cag ccg aga ggc		2799
Ser Arg Pro Ala Gln	Val Pro Gln Ala Ser	Gly Glu Gln Pro Arg Gly		
889	894	899	904	
aat ggt gcc aat ccc	cct gga gca ccc ccg	gag gtg gaa ccg tcc tct		2847
Asn Gly Ala Asn Pro	Pro Gly Ala Pro Pro	Glu Val Glu Pro Ser Ser		
905	910	915	920	
ggc aac ccc agc ccc	cag cag gca gcc tct	gtg ctg ttg cca cga tgc		2895
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Phe	Lys	Gln	Met	Leu	Ser	Asp	Leu	Phe	Thr	Ala	Arg	Gly	Ser	Pro	Phe	
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Lys	Thr	Lys	Ser	Ser	Glu	Ser	Pro	Ser	Ser	Ser	Pro	Ser	Ser	Pro	Ala	
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Lys Val Ser His Arg Asp Ile Leu Gly Asn Arg Asp Val Gln Val Lys	
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agt gtc gag gtt ttg atc agg ata atg atg cag ctg gtc tca gtg gcc	4254
Ser Val Glu Val Leu Ile Arg Ile Met Met Gln Leu Val Ser Val Ala	
1348 1353 1358 1363	
aag tct tgc gaa ggg aag aac gtg gag ttc atc cac agc ttg ctg cag	4302
Lys Ser Ser Glu Gly Lys Asn Val Glu Phe Ile His Ser Leu Leu Gln	
1364 1369 1374 1379	
agg tgc aaa gtt cag gag ttt gtc ctg ctc tcc ctg tgc gcg tcc atg	4350
Arg Cys Lys Val Gln Glu Phe Val Leu Leu Ser Leu Ser Ala Ser Met	
1380 1385 1390 1395	
tac acg agc cag aag cgc tac ggg ctg gcc acc gcc cac cac ggc agg	4398
Tyr Thr Ser Gln Lys Arg Tyr Gly Leu Ala Thr Ala His His Gly Arg	
1396 1401 1406 1411	
gcc ctg cca gag gac agc ctc ttt gag gag agt ctc att aac ttg ggt	4446
Ala Leu Pro Glu Asp Ser Leu Phe Glu Glu Ser Leu Ile Asn Leu Gly	
1412 1417 1422 1427	
cag gac cag atc tgg agt gag cac ccg ctg cag att gag ctg ctg aag	4494
Gln Asp Gln Ile Trp Ser Glu His Pro Leu Gln Ile Glu Leu Leu Lys	
1428 1433 1438 1443	
ctg ctg cag gtg ctg att gtc ttg gaa cac cac ctg ggt cgg gcc cat	4542

Leu Leu Gln Val	Leu Ile Val	Leu Glu His His	Leu Gly Arg Ala His	
1444	1449	1454	1459	
gag gag gcg gaa aac cag	ccc gac ctg tcc cgg	gag tgg cag aga gcc	4590	
Glu Glu Ala Glu Asn Gln	Pro Asp Leu Ser Arg	Glu Trp Gln Arg Ala		
1460	1465	1470	1475	
ctg aac ttc cag cag gcc	atc agc gcc ctg cag	tac gtg cag ccc cac	4638	
Leu Asn Phe Gln Gln Ala	Ile Ser Ala Leu Gln Tyr	Val Gln Pro His		
1476	1481	1486	1491	
ccc ctc acc tcc cag ggt	ctt ctg gtc tct gcg	gtg gtg agg ggt ctg	4686	
Pro Leu Thr Ser Gln Gly	Leu Leu Val Ser Ala	Val Val Arg Gly Leu		
1492	1497	1502	1507	
cag ccc gcc tac ggt tac	ggc atg cat ccg gcc	tgg gtg agc ttg gtc	4734	
Gln Pro Ala Tyr Gly Tyr	Gly Met His Pro Ala	Trp Val Ser Leu Val		
1508	1513	1518	1523	
acg cat tcc ttg ccc tac	ttc gga aag tcc ctg	ggc tgg acg gtg aca	4782	
Thr His Ser Leu Pro Tyr	Phe Gly Lys Ser Leu	Gly Trp Thr Val Thr		
1524	1529	1534	1539	
ccc ttt gtt gtc cag att	tgc aaa aac ttg gat	gac ttg gtc aag cag	4830	
Pro Phe Val Val Gln Ile	Cys Lys Asn Leu Asp	Asp Leu Val Lys Gln		
1540	1545	1550	1555	
tat gaa agc gaa tct gtg	aag ctc tct gtc agc	aca acc tcc aag agg	4878	
Tyr Glu Ser Glu Ser Val	Lys Leu Ser Val Ser	Thr Thr Ser Lys Arg		
1556	1561	1566	1571	
gaa aac att tct cca gat	tat cca ctc acc ctt	cta gaa ggt cta acg	4926	
Glu Asn Ile Ser Pro Asp	Tyr Pro Leu Thr Leu	Leu Glu Gly Leu Thr		
1572	1577	1582	1587	
acc att agt cat ttt tgt	ctt ttg gaa caa gcc	aac caa aac aaa aag	4974	
Thr Ile Ser His Phe Cys	Leu Leu Glu Gln Ala	Asn Gln Asn Lys Lys		
1588	1593	1598	1603	
acc atg gct gca ggt gat	cct gcc aac ttg agg	aat gcc aga aat gcc	5022	
Thr Met Ala Ala Gly Asp	Pro Ala Asn Leu Arg	Asn Ala Arg Asn Ala		
1604	1609	1614	1619	
att ttg gaa gag ctg cct	cga act gtt aac acc	atg gcc ctt ctc tgg	5070	
Ile Leu Glu Glu Leu Pro	Arg Thr Val Asn Thr	Met Ala Leu Leu Trp		
1620	1625	1630	1635	
aat gtt ctc gga aag gag	gag act caa aag aga	cct gtc gat ctc cta	5118	
Asn Val Leu Gly Lys Glu	Glu Thr Gln Lys Arg	Pro Val Asp Leu Leu		
1636	1641	1646	1651	
ggg gcc gcg aag gga tcc	tct tcc gtt tac ttt	aaa acc acc aaa acc	5166	
Gly Ala Ala Lys Gly Ser	Ser Ser Val Tyr Phe	Lys Thr Thr Lys Thr		
1652	1657	1662	1667	
ata aga caa aaa att tta	gac ttc tta aac ccc	ttg acg gcc cat ctt	5214	
Ile Arg Gln Lys Ile Leu	Asp Phe Leu Asn Pro	Leu Thr Ala His Leu		

1668	1673	1678	1683	
ggg gtt cag ttg aca gcg gct gtt gcg gca gtg tgg agc aga aag aaa				5262
Gly Val Gln Leu Thr Ala Ala Val Ala Ala Val Trp Ser Arg Lys Lys				
1684	1689	1694	1699	
gcc cag cgt cac agt aag atg aag att atc cca acg gca agt gca tcc				5310
Ala Gln Arg His Ser Lys Met Lys Ile Ile Pro Thr Ala Ser Ala Ser				
1700	1705	1710	1715	
cag cta acc ctt gtc gac ttg gtg tgt gca ctc agc acc ctg cag act				5358
Gln Leu Thr Leu Val Asp Leu Val Cys Ala Leu Ser Thr Leu Gln Thr				
1716	1721	1726	1731	
gac acg ctg ctg cac ctg gtg aag gag gtg gtg aag agg cca ccc caa				5406
Asp Thr Leu Leu His Leu Val Lys Glu Val Val Lys Arg Pro Pro Gln				
1732	1737	1742	1747	
gtc aaa ggg ggt gat gag aaa tcg ccc cta gtg gac att cct gtg ttg				5454
Val Lys Gly Gly Asp Glu Lys Ser Pro Leu Val Asp Ile Pro Val Leu				
1748	1753	1758	1763	
cag ttt tgc tat gct ttt ctc caa agg ctc cca gta cca gcc ttg caa				5502
Gln Phe Cys Tyr Ala Phe Leu Gln Arg Leu Pro Val Pro Ala Leu Gln				
1764	1769	1774	1779	
gag aac ttt tct tca ctg ttg gga gta ttg aaa gag tct gta cag ttg				5550
Glu Asn Phe Ser Ser Leu Leu Gly Val Leu Lys Glu Ser Val Gln Leu				
1780	1785	1790	1795	
aat cta gcc cca cct ggg tat ttt ctg ctt ctc agc atg ctg aat gac				5598
Asn Leu Ala Pro Pro Gly Tyr Phe Leu Leu Leu Ser Met Leu Asn Asp				
1796	1801	1806	1811	
ttt gta aca aga act ccc aac ctg gaa aac aag aag gac caa aaa gac				5646
Phe Val Thr Arg Thr Pro Asn Leu Glu Asn Lys Lys Asp Gln Lys Asp				
1812	1817	1822	1827	
ctg cag gaa atc act cag aaa atc cta gaa gct gtg ggg aac att gcc				5694
Leu Gln Glu Ile Thr Gln Lys Ile Leu Glu Ala Val Gly Asn Ile Ala				
1828	1833	1838	1843	
ggc tct tcc ttg gag caa acc agc tgg cta agc aga aac ctg gaa gtg				5742
Gly Ser Ser Leu Glu Gln Thr Ser Trp Leu Ser Arg Asn Leu Glu Val				
1844	1849	1854	1859	
aag gcc caa cct cag gcc tct cta gaa gaa tct gat gct gag gag gac				5790
Lys Ala Gln Pro Gln Ala Ser Leu Glu Glu Ser Asp Ala Glu Glu Asp				
1860	1865	1870	1875	
ctg tat gat gct gct gca gct tca gca atg gtg tct tca tcc gcc ccg				5838
Leu Tyr Asp Ala Ala Ala Ala Ser Ala Met Val Ser Ser Ser Ala Pro				
1876	1881	1886	1891	
tcg gtg tac agc gtg caa gcc ctc tct ctc ctg gca gag gta ctg gct				5886
Ser Val Tyr Ser Val Gln Ala Leu Ser Leu Leu Ala Glu Val Leu Ala				
1892	1897	1902	1907	

tcc ctc ctg gac atg gtt tat cga agt gat gag aag gag aaa gct gtg	5934
Ser Leu Leu Asp Met Val Tyr Arg Ser Asp Glu Lys Glu Lys Ala Val	
1908 1913 1918 1923	
ccg tta atc tcc cgt ctg ctt tac tat gtt ttt cca tac tta cgc aac	5982
Pro Leu Ile Ser Arg Leu Leu Tyr Tyr Val Phe Pro Tyr Leu Arg Asn	
1924 1929 1934 1939	
cac agt gcc tac aat gct ccc agc ttc cgg gct ggc gct cag ctg ctg	6030
His Ser Ala Tyr Asn Ala Pro Ser Phe Arg Ala Gly Ala Gln Leu Leu	
1940 1945 1950 1955	
agc tcc ctg agt ggc tat gcc tac aca aag cga gcc tgg agg aag gag	6078
Ser Ser Leu Ser Gly Tyr Ala Tyr Thr Lys Arg Ala Trp Arg Lys Glu	
1956 1961 1966 1971	
gtc ctg gag ctg ttt ctc gac ccc gct ttc ttt cag atg gat act tcc	6126
Val Leu Glu Leu Phe Leu Asp Pro Ala Phe Phe Gln Met Asp Thr Ser	
1972 1977 1982 1987	
tgt gtt cat tgg aag tcc att att gac cat ctt ttg act cat gag aaa	6174
Cys Val His Trp Lys Ser Ile Ile Asp His Leu Leu Thr His Glu Lys	
1988 1993 1998 2003	
aca atg ttt aag gat tta atg aac atg cag agc agt tct ttg aaa cta	6222
Thr Met Phe Lys Asp Leu Met Asn Met Gln Ser Ser Ser Leu Lys Leu	
2004 2009 2014 2019	
ttc tca agt ttt gaa cag aaa gcc atg ctg tta aag cgc cag gct ttt	6270
Phe Ser Ser Phe Glu Gln Lys Ala Met Leu Leu Lys Arg Gln Ala Phe	
2020 2025 2030 2035	
gct gtc ttc agt gga gaa ctt gat caa tac cac ctt tac ctt cca ctg	6318
Ala Val Phe Ser Gly Glu Leu Asp Gln Tyr His Leu Tyr Leu Pro Leu	
2036 2041 2046 2051	
ata caa gaa cgc ctg aca gac aat ctc aga gtt gga cag aca tcc ata	6366
Ile Gln Glu Arg Leu Thr Asp Asn Leu Arg Val Gly Gln Thr Ser Ile	
2052 2057 2062 2067	
gtt gct gct cag atg ttt ctt ttt ttc aga gtt ttg ctg cta aga ata	6414
Val Ala Ala Gln Met Phe Leu Phe Phe Arg Val Leu Leu Leu Arg Ile	
2068 2073 2078 2083	
tct cct caa cat ttg act tca ttg tgg cca ata atg gtc tct gaa ttg	6462
Ser Pro Gln His Leu Thr Ser Leu Trp Pro Ile Met Val Ser Glu Leu	
2084 2089 2094 2099	
att cag aca ttc aca cag ctt gaa gaa gat cta aaa gat gaa gat gag	6510
Ile Gln Thr Phe Thr Gln Leu Glu Glu Asp Leu Lys Asp Glu Asp Glu	
2100 2105 2110 2115	
tca ttg aga agc acc aac aaa gta aac aga acg aaa gtt tca gtc ccg	6558
Ser Leu Arg Ser Thr Asn Lys Val Asn Arg Thr Lys Val Ser Val Pro	
2116 2121 2126 2131	

gat gca aat gga ccc tca gtg ggg gag ata ccc cag agt gaa ctc atc	6606
Asp Ala Asn Gly Pro Ser Val Gly Glu Ile Pro Gln Ser Glu Leu Ile	
2132 2137 2142 2147	
ttg tat tta tca gct tgc aaa ttc ttg gac aca gcg ctt tct ttt cca	6654
Leu Tyr Leu Ser Ala Cys Lys Phe Leu Asp Thr Ala Leu Ser Phe Pro	
2148 2153 2158 2163	
cct gac aag atg cca tta ttt caa att tat agg tgg gca ttt att cca	6702
Pro Asp Lys Met Pro Leu Phe Gln Ile Tyr Arg Trp Ala Phe Ile Pro	
2164 2169 2174 2179	
gaa gtg gac aca gag ggc cct gcc ttc ctg tgc gat gta gag gag aat	6750
Glu Val Asp Thr Glu Gly Pro Ala Phe Leu Ser Asp Val Glu Glu Asn	
2180 2185 2190 2195	
cac caa gaa tgc aaa ccc cac act gtc agg att cta gaa ctt cta aaa	6798
His Gln Glu Cys Lys Pro His Thr Val Arg Ile Leu Glu Leu Leu Lys	
2196 2201 2206 2211	
tta aag ttt ggg gaa atc agt agc tct gat gag atc acc atg aag agt	6846
Leu Lys Phe Gly Glu Ile Ser Ser Ser Asp Glu Ile Thr Met Lys Ser	
2212 2217 2222 2227	
gaa ttc ccg ctt ctg cgc caa cat tct gtt tcc agc atc agg cag ttg	6894
Glu Phe Pro Leu Leu Arg Gln His Ser Val Ser Ser Ile Arg Gln Leu	
2228 2233 2238 2243	
atg cca ttc ttc atg act cta aat ggt gca ttt aag acc cag aga cag	6942
Met Pro Phe Phe Met Thr Leu Asn Gly Ala Phe Lys Thr Gln Arg Gln	
2244 2249 2254 2259	
ctg cct gct gat agc cca gga act cca ttc ttg gac ttt cct gtc aca	6990
Leu Pro Ala Asp Ser Pro Gly Thr Pro Phe Leu Asp Phe Pro Val Thr	
2260 2265 2270 2275	
gat agc cca agg atc tta aaa caa ctg gaa gaa tgc atc gaa tat gat	7038
Asp Ser Pro Arg Ile Leu Lys Gln Leu Glu Glu Cys Ile Glu Tyr Asp	
2276 2281 2286 2291	
ttt ctg gaa cat cca gaa tgt taa ccatgtgaga gagaatatgt ttaatccatg	7092
Phe Leu Glu His Pro Glu Cys *	
2292 2297	
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ttttgaacaa gcctattttcc attttgaaag tagatttcag gctagggtgcg gtggctcaca	7212
cctgtaatct cagcactttg ggaggccaag gcaggcagat cacttgaggt caggagttcg	7272
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 tcatccaaga tcatctcacc tcccatgaag ggaacggtct tctaa atg cag ttt 174  
 Met Gln Phe  
 1  
 tcc ttc cag cag ggt gga tgg gga gca tcg ctg gct gac agg ctg gtc 222  
 Ser Phe Gln Gln Gly Gly Trp Gly Ala Ser Leu Ala Asp Arg Leu Val  
 4 9 14 19  
 aga aaa tgt gat gtt ctg aat cgt gga ttt tca ggt tac aat acc agg 270  
 Arg Lys Cys Asp Val Leu Asn Arg Gly Phe Ser Gly Tyr Asn Thr Arg  
 20 25 30 35  
 tgg gcc aaa att atc ctt cca aga tta atc agg aaa gga aac agt ttg 318  
 Trp Ala Lys Ile Ile Leu Pro Arg Leu Ile Arg Lys Gly Asn Ser Leu  
 36 41 46 51  
 gac atc cca gta gca gtt aca att ttc ttt ggg gcc aat gac agt gca 366  
 Asp Ile Pro Val Ala Val Thr Ile Phe Phe Gly Ala Asn Asp Ser Ala  
 52 57 62 67  
 cta aaa gat gag aat ccc aag cag cac att ccc ctg gag gag tac gct 414  
 Leu Lys Asp Glu Asn Pro Lys Gln His Ile Pro Leu Glu Glu Tyr Ala  
 68 73 78 83

gcg aac cta aag agc atg gtg cag tac ctg aag tcc gtg gac atc cct	462
Ala Asn Leu Lys Ser Met Val Gln Tyr Leu Lys Ser Val Asp Ile Pro	
84 89 94 99	
gag aat cga gtc att ctc atc acg ccg acc cca ctt tgt gaa aca gcc	510
Glu Asn Arg Val Ile Leu Ile Thr Pro Thr Pro Leu Cys Glu Thr Ala	
100 105 110 115	
tgg gaa gaa cag tgc atc ata caa ggt tgc aaa cta aat cgc ctg aac	558
Trp Glu Glu Gln Cys Ile Ile Gln Gly Cys Lys Leu Asn Arg Leu Asn	
116 121 126 131	
tct gtt gtt ggt gaa tat gcc aat gcg tgt tta caa gtg gcc caa gac	606
Ser Val Val Gly Glu Tyr Ala Asn Ala Cys Leu Gln Val Ala Gln Asp	
132 137 142 147	
tgt ggg act gac gta ctt gac ctg tgg acc ctg atg cag gac agc cag	654
Cys Gly Thr Asp Val Leu Asp Leu Trp Thr Leu Met Gln Asp Ser Gln	
148 153 158 163	
gac ttc tca tct tat tta tca gat gga cta cat ttg tct cca aag ggg	702
Asp Phe Ser Ser Tyr Leu Ser Asp Gly Leu His Leu Ser Pro Lys Gly	
164 169 174 179	
aat gaa ttt ttg ttc tgc cat ctc tgg cct ttg ata gag aaa aag gtc	750
Asn Glu Phe Leu Phe Ser His Leu Trp Pro Leu Ile Glu Lys Lys Val	
180 185 190 195	
tct tct cta cct ttg ctg ctt cct tac tgg cgg gat gta gca gaa gca	798
Ser Ser Leu Pro Leu Leu Leu Pro Tyr Trp Arg Asp Val Ala Glu Ala	
196 201 206 211	
aaa cct gaa tta agt ctg ctg gga gat gga gac cat tag ccaatcacag	847
Lys Pro Glu Leu Ser Leu Leu Gly Asp Gly Asp His *	
212 217 222	
gagacccaaa tctgcttggt atctacagaa ctcaaagttg tcaatacgta gaggtacgct	907
tttttctca ggcttaaacc ttgtccactg atattaataa taaaagtatt agatgatttt	967
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 atg aat aga gca gct agg aac aaa tct gag aag agg tac tat tca gaa 165  
 Met Asn Arg Ala Ala Arg Asn Lys Ser Glu Lys Arg Tyr Tyr Ser Glu  
 1 5 10 15  
 ttc ctc caa ata gct cat ctt ttt aat tat ggg ctt tca tcc ttc cta 213  
 Phe Leu Gln Ile Ala His Leu Phe Asn Tyr Gly Leu Ser Ser Phe Leu  
 17 22 27 32  
 agg gag ttt att att ttt cta att aaa cta cta caa tga aggctattac 262  
 Arg Glu Phe Ile Ile Phe Leu Ile Lys Leu Leu Gln \*  
 33 38 43  
 ctttttgtct agctaaaaca atcttttcta ttaatgaatt tattggcttc tctagtactc 322  
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 gggtgaaaca aatcatgctt ctattatcac ttctggagtt agcccttcac ctgatcagct 442  
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agtccacttc gagtcgccgg cccacctct cgggttccgg cttcttccgg gtcgcggcct 1080  
tccggcgaac gcggttaccg tggaaaccgc ggcc atg gcg gca ccg cgg caa 1132

Met Ala Ala Pro Arg Gln

1

atc	ccc	agc	cac	ata	gtg	cgc	ctc	aag	ccc	agc	tgc	tct	aca	gac	tgc	1180
Ile	Pro	Ser	His	Ile	Val	Arg	Leu	Lys	Pro	Ser	Cys	Ser	Thr	Asp	Ser	
7					12					17					22	
tgc	ttc	acc	cgg	acg	ccg	gtg	ccc	acc	gtg	tct	ctc	gcg	tcc	cgc	gag	1228
Ser	Phe	Thr	Arg	Thr	Pro	Val	Pro	Thr	Val	Ser	Leu	Ala	Ser	Arg	Glu	
23					28					33					38	
ctg	cct	gtc	tgc	tgc	tgg	cag	gtc	acc	gag	ccg	tca	agc	aag	aat	ctg	1276
Leu	Pro	Val	Ser	Ser	Trp	Gln	Val	Thr	Glu	Pro	Ser	Ser	Lys	Asn	Leu	
39					44					49					54	
tgg	gag	cag	atc	tgc	aag	gag	tat	gaa	gct	gag	cag	cct	ccc	ttt	cca	1324
Trp	Glu	Gln	Ile	Cys	Lys	Glu	Tyr	Glu	Ala	Glu	Gln	Pro	Pro	Phe	Pro	
55					60					65					70	
gaa	gga	tat	aaa	gtc	aaa	cag	gag	cct	gtg	att	acg	gtt	gcg	cca	gta	1372
Glu	Gly	Tyr	Lys	Val	Lys	Gln	Glu	Pro	Val	Ile	Thr	Val	Ala	Pro	Val	
71					76					81					86	
gag	gaa	atg	ctt	ttt	cat	ggc	ttc	agt	gca	gag	cac	tat	ttt	ccg	gtt	1420
Glu	Glu	Met	Leu	Phe	His	Gly	Phe	Ser	Ala	Glu	His	Tyr	Phe	Pro	Val	
87					92					97					102	
tcc	cat	ttc	acc	atg	atc	tca	cgt	aca	ccc	tgt	cct	caa	gat	aaa	tgc	1468
Ser	His	Phe	Thr	Met	Ile	Ser	Arg	Thr	Pro	Cys	Pro	Gln	Asp	Lys	Ser	
103					108					113					118	
gaa	aca	atc	aac	cca	aaa	aca	tgt	tct	ccc	aaa	gaa	tat	ttg	gaa	act	1516
Glu	Thr	Ile	Asn	Pro	Lys	Thr	Cys	Ser	Pro	Lys	Glu	Tyr	Leu	Glu	Thr	
119					124					129					134	
ttc	atc	ttt	cct	gtt	ctg	ctt	ccc	gga	atg	gct	agc	ctg	ctt	cac	caa	1564
Phe	Ile	Phe	Pro	Val	Leu	Leu	Pro	Gly	Met	Ala	Ser	Leu	Leu	His	Gln	
135					140					145					150	
gcg	aag	aaa	gaa	aaa	tgt	ttt	gag	gtt	cgc	tgt	gat	cct	gag	att	caa	1612
Ala	Lys	Lys	Glu	Lys	Cys	Phe	Glu	Val	Arg	Cys	Asp	Pro	Glu	Ile	Gln	
151					156					161					166	
gaa	ctg	cgt	cag	tgg	cag	aag	aaa	ctt	cgc	gag	gcc	aag	cac	att	cac	1660
Glu	Leu	Arg	Gln	Trp	Gln	Lys	Lys	Leu	Arg	Glu	Ala	Lys	His	Ile	His	
167					172					177					182	
cag	caa	gtc	aaa	att	ttc	tgg	gcc	aag	caa	gaa	caa	aaa	gtg	aaa	tgc	1708
Gln	Gln	Val	Lys	Ile	Phe	Trp	Ala	Lys	Gln	Glu	Gln	Lys	Val	Lys	Cys	
183					188					193					198	
aaa	atg	gag	gac	gat	cag	tac	ctg	cag	cca	aga	tga	aaat	tccatcatct			1758
Lys	Met	Glu	Asp	Asp	Gln	Tyr	Leu	Gln	Pro	Arg	*					
199					204					209						
taaccatagc	taagacgtat	ctttgccccat	tgcacacaag	ttaccttggtg	caaggaaaat											1818

gtccaaatga tgctctctct cttgtgattt cttaaacaag acttggaaca tgtgcaaaaa 1878  
 aaaaaaa 1885

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 Met  
 1

gat tcc ttt ggg caa ccc aga cca gaa gat aat cag tca gta gtc aga 165  
 Asp Ser Phe Gly Gln Pro Arg Pro Glu Asp Asn Gln Ser Val Val Arg  
 2 7 12 17

aga atg caa aag aaa tac tgg aaa act aaa cag gtc ttt atc aaa gca 213  
 Arg Met Gln Lys Lys Tyr Trp Lys Thr Lys Gln Val Phe Ile Lys Ala  
 18 23 28 33

aca gga aaa aaa gag gat gag cac ttg gtg gcg tct gat gct gaa ctg 261  
 Thr Gly Lys Lys Glu Asp Glu His Leu Val Ala Ser Asp Ala Glu Leu  
 34 39 44 49

gat gct aaa ctt gag gtt ttt cac tct gtt caa gag aca tgc act gaa 309  
 Asp Ala Lys Leu Glu Val Phe His Ser Val Gln Glu Thr Cys Thr Glu  
 50 55 60 65

ctt ctg aag ata atc gag aaa tac cag cta aga ctc aat ggt atg aaa 357  
 Leu Leu Lys Ile Ile Glu Lys Tyr Gln Leu Arg Leu Asn Gly Met Lys  
 66 71 76 81

tca tag ttatctatct gataattccc atttaaaata aatattagca ttttttaaaa 413  
 Ser \*  
 82

tgaaagattt aatgtaaaaa caattttgtg aatagcttct tatggcaaaa tatgaatatt 473

tacagctacc tgtttcctaaa ggccccagta ttctctcttc tttctcagt taatcaaacc 533

ctctgacca gatttatctt ttgctgatat tttttttctt tgagacaggg tctttctctg 593

cactccagcc taggcaacag agcaagactc cgtctcaaaa aa 635

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 tctgggacat ccagcacagt gagcggcccc tgggcaccac cagaaaacat ttgtgggtga 180  
 acgtggagtg atgaccatgt ggacactgtc tttccagggt ttcttgagac ctctgcagag 240  
 tctggggggc aggtcttcta gtggaaactg caggatcttc cttctgaccc ctgcttgcc 300  
 cgccccagca gctccggttg agtccacaga tgccagctca gcttccagct tggggaagag 360  
 tggggttgtc agcaggagag cctgagggtc gaggcccagc gtgaac atg gca gct 415  
 Met Ala Ala  
 1  
 aat ggg gac tct ccc cca tgg tcc ccg gcc ctg gct gca gag gga cgt 463  
 Asn Gly Asp Ser Pro Pro Trp Ser Pro Ala Leu Ala Ala Glu Gly Arg  
 4 9 14 19  
 ggc agc tca tgt gag gct tca gtg tca ttt gag gac gtg act gtg gac 511  
 Gly Ser Ser Cys Glu Ala Ser Val Ser Phe Glu Asp Val Thr Val Asp  
 20 25 30 35  
 ttc agc aag gag gag tgg cag cac ttg gac cct gcc cag aga cgc ctg 559  
 Phe Ser Lys Glu Glu Trp Gln His Leu Asp Pro Ala Gln Arg Arg Leu  
 36 41 46 51  
 tac tgg gat gtg aca cta gag aac tac agc cac ctg ctc tca gtg ggg 607  
 Tyr Trp Asp Val Thr Leu Glu Asn Tyr Ser His Leu Leu Ser Val Gly  
 52 57 62 67  
 tac caa att ccc aag tca gag gct gcc ttc aag ttg gag caa gga gag 655  
 Tyr Gln Ile Pro Lys Ser Glu Ala Ala Phe Lys Leu Glu Gln Gly Glu  
 68 73 78 83  
 ggg cca tgg atg ctg gag ggg gaa gcc cca cat cag agc tgt tca ggt 703  
 Gly Pro Trp Met Leu Glu Gly Glu Ala Pro His Gln Ser Cys Ser Gly  
 84 89 94 99  
 gag gct att ggg aaa atg cag caa cag gga att cct gga gga att ttc 751  
 Glu Ala Ile Gly Lys Met Gln Gln Gln Gly Ile Pro Gly Gly Ile Phe  
 100 105 110 115  
 ttc cac tgt gag aga ttt gat caa ccc ata gga gaa gat tca tta tgt 799  
 Phe His Cys Glu Arg Phe Asp Gln Pro Ile Gly Glu Asp Ser Leu Cys

116	121	126	131	
tct att tta gaa gaa ctg tgg caa gat aat gac cag cta gag caa cgt				847
Ser Ile Leu Glu Glu Leu Trp Gln Asp Asn Asp Gln Leu Glu Gln Arg				
132	137	142	147	
cag gaa aac cag aat aac ctt tta agt cat gtg aaa gta ttg att aag				895
Gln Glu Asn Gln Asn Asn Leu Leu Ser His Val Lys Val Leu Ile Lys				
148	153	158	163	
gag agg ggc tat gaa cat aaa aac att gaa aaa ata att cat gtg act				943
Glu Arg Gly Tyr Glu His Lys Asn Ile Glu Lys Ile Ile His Val Thr				
164	169	174	179	
acc aag ctt gtt cct tca att aaa aga ctc cat aac tgt gac aca att				991
Thr Lys Leu Val Pro Ser Ile Lys Arg Leu His Asn Cys Asp Thr Ile				
180	185	190	195	
ttg aag cat act tta aac tca cat aat cat aat aga aac agt gca aca				1039
Leu Lys His Thr Leu Asn Ser His Asn His Asn Arg Asn Ser Ala Thr				
196	201	206	211	
aag aac ctt ggc aag att ttt gga aat ggt aac aat ttc ccc cat agc				1087
Lys Asn Leu Gly Lys Ile Phe Gly Asn Gly Asn Asn Phe Pro His Ser				
212	217	222	227	
cct tcc tct act aag aat gag aat gct aaa aca gga gca aat tcc tgt				1135
Pro Ser Ser Thr Lys Asn Glu Asn Ala Lys Thr Gly Ala Asn Ser Cys				
228	233	238	243	
gaa cat gac cac tat gaa aaa cat ctc agc cac aaa caa gct ccc acc				1183
Glu His Asp His Tyr Glu Lys His Leu Ser His Lys Gln Ala Pro Thr				
244	249	254	259	
cac cat cag aaa att cat cct gag gag aag ctt tat gtg tgt act gaa				1231
His His Gln Lys Ile His Pro Glu Glu Lys Leu Tyr Val Cys Thr Glu				
260	265	270	275	
tgt gta atg ggc ttc act cag aag tca cat ctg ttt gag cat cag aga				1279
Cys Val Met Gly Phe Thr Gln Lys Ser His Leu Phe Glu His Gln Arg				
276	281	286	291	
att cat gct gga gaa aag tcc cgt gaa tgt gac aaa agc aac aaa gtc				1327
Ile His Ala Gly Glu Lys Ser Arg Glu Cys Asp Lys Ser Asn Lys Val				
292	297	302	307	
ttc ccc cag aaa ccc cag gtt gat gta cat cca agt gtt tat aca gga				1375
Phe Pro Gln Lys Pro Gln Val Asp Val His Pro Ser Val Tyr Thr Gly				
308	313	318	323	
gaa aaa ccc tat ctg tgt act caa tgt ggg aaa gtc ttt acc ctc aaa				1423
Glu Lys Pro Tyr Leu Cys Thr Gln Cys Gly Lys Val Phe Thr Leu Lys				
324	329	334	339	
tca aac ctc att aca cat caa aaa att cat acc ggg cag aaa ccc tac				1471
Ser Asn Leu Ile Thr His Gln Lys Ile His Thr Gly Gln Lys Pro Tyr				
340	345	350	355	

aaa tgc agt gaa tgt gga aaa gcc ttt ttc cag aga tca gac ctc ttt	1519
Lys Cys Ser Glu Cys Gly Lys Ala Phe Phe Gln Arg Ser Asp Leu Phe	
356 361 366 371	
aga cat ctg aga att cat aca gga gaa aaa cct tat gaa tgc agt gaa	1567
Arg His Leu Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Ser Glu	
372 377 382 387	
tgt gga aaa ggc ttc tcc cag aac tca gac ctc agt ata cat cag aaa	1615
Cys Gly Lys Gly Phe Ser Gln Asn Ser Asp Leu Ser Ile His Gln Lys	
388 393 398 403	
act cat acc gga gag aaa cac tat gaa tgc aat gaa tgt ggg aag gct	1663
Thr His Thr Gly Glu Lys His Tyr Glu Cys Asn Glu Cys Gly Lys Ala	
404 409 414 419	
ttc aca aga aaa tca gca ctc agg atg cat cag aga atc cac acg gga	1711
Phe Thr Arg Lys Ser Ala Leu Arg Met His Gln Arg Ile His Thr Gly	
420 425 430 435	
gag aaa cct tat gta tgc gct gac tgt ggg aag gcc ttc atc cag aaa	1759
Glu Lys Pro Tyr Val Cys Ala Asp Cys Gly Lys Ala Phe Ile Gln Lys	
436 441 446 451	
tca cat ttc aac aca cat cag aga att cat act gga gaa aag ccg tat	1807
Ser His Phe Asn Thr His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr	
452 457 462 467	
gaa tgc agt gac tgt ggg aaa tcc ttc act aag aag tca caa ctc cat	1855
Glu Cys Ser Asp Cys Gly Lys Ser Phe Thr Lys Lys Ser Gln Leu His	
468 473 478 483	
gtg cat caa aga att cac acc gga gag aaa ccc tat ata tgt aca gaa	1903
Val His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Thr Glu	
484 489 494 499	
tgt gga aag gtc ttc act cac agg aca aac ctc acc aca cat cag aaa	1951
Cys Gly Lys Val Phe Thr His Arg Thr Asn Leu Thr Thr His Gln Lys	
500 505 510 515	
act cat act ggg gaa aaa ccc tat atg tgt gct gaa tgt gga aag gct	1999
Thr His Thr Gly Glu Lys Pro Tyr Met Cys Ala Glu Cys Gly Lys Ala	
516 521 526 531	
ttt act gac cag tca aat ctc att aaa cac cag aaa act cac act gga	2047
Phe Thr Asp Gln Ser Asn Leu Ile Lys His Gln Lys Thr His Thr Gly	
532 537 542 547	
gag aaa ccc tat aag tgc aat ggc tgt gga aaa gcc ttc ata tgg aag	2095
Glu Lys Pro Tyr Lys Cys Asn Gly Cys Gly Lys Ala Phe Ile Trp Lys	
548 553 558 563	
tcg cgc ctc aaa ata cat cag aaa tct cat att gga gag aga cac tat	2143
Ser Arg Leu Lys Ile His Gln Lys Ser His Ile Gly Glu Arg His Tyr	
564 569 574 579	

gaa tgc aag gac tgc ggg aaa gcc ttc atc cag aaa tca aca cta agc	2191
Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln Lys Ser Thr Leu Ser	
580 585 590 595	
gtg cat cag aga atc cat aca gga gag aaa ccg tac gtt tgt cct gaa	2239
Val His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Pro Glu	
596 601 606 611	
tgc ggg aag gcc ttt atc cag aaa tcg cac ttc att gcg cat cat aga	2287
Cys Gly Lys Ala Phe Ile Gln Lys Ser His Phe Ile Ala His His Arg	
612 617 622 627	
atc cat act gga gag aag cct tat gaa tgc agc gac tgt ggg aaa tgc	2335
Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Ser Asp Cys Gly Lys Cys	
628 633 638 643	
ttc act aag aag tca caa ctc cgt gtg cat cag aaa atc cac aca ggt	2383
Phe Thr Lys Lys Ser Gln Leu Arg Val His Gln Lys Ile His Thr Gly	
644 649 654 659	
gag aag ccc aat ata tgt gct gaa tgt gga aag gcc ttc act gac cga	2431
Glu Lys Pro Asn Ile Cys Ala Glu Cys Gly Lys Ala Phe Thr Asp Arg	
660 665 670 675	
tca aat ctc ata aca cat cag aaa atc cac act agg gag aaa ccc tat	2479
Ser Asn Leu Ile Thr His Gln Lys Ile His Thr Arg Glu Lys Pro Tyr	
676 681 686 691	
gaa tgt ggt gac tgc ggg aaa acc ttc acc tgg aag tca cgc ctc aat	2527
Glu Cys Gly Asp Cys Gly Lys Thr Phe Thr Trp Lys Ser Arg Leu Asn	
692 697 702 707	
ata cat cag aag tct cat act gga gaa aga cac tat gaa tgt agt aaa	2575
Ile His Gln Lys Ser His Thr Gly Glu Arg His Tyr Glu Cys Ser Lys	
708 713 718 723	
tgt ggg aaa gct ttc atc cag aaa gcc aca cta agt atg cat cag ata	2623
Cys Gly Lys Ala Phe Ile Gln Lys Ala Thr Leu Ser Met His Gln Ile	
724 729 734 739	
att cat aca gga aag aaa cct tat gct tgt aca gaa tgt cag aag gcc	2671
Ile His Thr Gly Lys Lys Pro Tyr Ala Cys Thr Glu Cys Gln Lys Ala	
740 745 750 755	
ttt act gac aga tcg aat ctc att aaa cac cag aaa atg cat agt gga	2719
Phe Thr Asp Arg Ser Asn Leu Ile Lys His Gln Lys Met His Ser Gly	
756 761 766 771	
gaa aaa cgc tat aaa gcc agt gac tga gaaag tcttcacctg gaaatcacia	2771
Glu Lys Arg Tyr Lys Ala Ser Asp *	
772 777	
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 <222> (148)..(459)

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 ctgctgagta ggcgctgtga tttcaga atg tct ggg cga ggt aaa ggt ggc 171  
 Met Ser Gly Arg Gly Lys Gly Gly  
 1 5  
 aag ggg ctg ggt aag gga ggc gcc aag cgc cac cgg aag gtg ctg cgg 219  
 Lys Gly Leu Gly Lys Gly Gly Ala Lys Arg His Arg Lys Val Leu Arg  
 9 14 19 24  
 gac aat atc caa ggc att aca aag ccg gcg att cgc cgt ctc gcc cga 267  
 Asp Asn Ile Gln Gly Ile Thr Lys Pro Ala Ile Arg Arg Leu Ala Arg  
 25 30 35 40  
 cgt ggg ggc gtc aag cgc att tct ggt ctc atc tac gag gag acc cgg 315  
 Arg Gly Gly Val Lys Arg Ile Ser Gly Leu Ile Tyr Glu Glu Thr Arg  
 41 46 51 56  
 gga gtc ctc aaa gtc ttc ctg gag aac gtg atc cgt gac gcg gtg act 363  
 Gly Val Leu Lys Val Phe Leu Glu Asn Val Ile Arg Asp Ala Val Thr  
 57 62 67 72  
 tac acg gag cac gcc aag cgc aag acc gtc acg gcc atg gat gtg gtg 411  
 Tyr Thr Glu His Ala Lys Arg Lys Thr Val Thr Ala Met Asp Val Val  
 73 78 83 88  
 tac gcg ctg aaa cgc cag ggt cgc acc ctt tat ggt ttc ggc ggt tga 459  
 Tyr Ala Leu Lys Arg Gln Gly Arg Thr Leu Tyr Gly Phe Gly Gly \*  
 89 94 99 104  
 gctgtcccca cagcttctct acagactcca aaaggccctt ttcaggggcc ccaaaactgtc 519  
 acagaaagag ctgttaacac ttctagata acggaccaag tctagctctg ccaccgaggc 579  
 tggagtgcag tggcacgata tcgcctccgc ctcccggtt caagcgattc acctgcotca 639  
 gcttcccag tagctgggat tacaggcctg cgccaccacg cctggctaatt ttttgtattt 699  
 tttttttttt ttgggaaaaa acgggggttt cccttggtggg ccgggggggt tttgaactcc 759  
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<210> 307  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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<400> 307

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gaa gct aaa ctt atg ggc ttt aca cag ggc tgt gtg acc ttt gag gac 96  
 Glu Ala Lys Leu Met Gly Phe Thr Gln Gly Cys Val Thr Phe Glu Asp  
 17 22 27 32

gtg gcc att tac ttc tcc cag gaa gaa tgg ggg ctc ctt gat gag gct 144  
 Val Ala Ile Tyr Phe Ser Gln Glu Glu Trp Gly Leu Leu Asp Glu Ala  
 33 38 43 48

cag agg ctc ctg tac cgc gat gtg atg ctg gag aac ttt gca ctt ata 192  
 Gln Arg Leu Leu Tyr Arg Asp Val Met Leu Glu Asn Phe Ala Leu Ile  
 49 54 59 64

act gcg ctg gtt tgt tgg cat ggg atg gag gat gaa gag aca cct gag 240  
 Thr Ala Leu Val Cys Trp His Gly Met Glu Asp Glu Glu Thr Pro Glu  
 65 70 75 80

caa agt gtt tct gta gaa gga gta cct cag gtc agg act cca gag gcc 288  
 Gln Ser Val Ser Val Glu Gly Val Pro Gln Val Arg Thr Pro Glu Ala  
 81 86 91 96

agt cca tcc acc cag aag att caa tcc tgt gac atg tgt gtc cca ttc 336  
 Ser Pro Ser Thr Gln Lys Ile Gln Ser Cys Asp Met Cys Val Pro Phe  
 97 102 107 112

ctg acc gac att ttg cac ctg acc gat ttg cct ggg cag gaa cta tac 384  
 Leu Thr Asp Ile Leu His Leu Thr Asp Leu Pro Gly Gln Glu Leu Tyr  
 113 118 123 128

ttg act ggg gca tgt gcg gtc ttt cac cag gac cag aag cat cat agt 432  
 Leu Thr Gly Ala Cys Ala Val Phe His Gln Asp Gln Lys His His Ser  
 129 134 139 144

gca gag aaa ccc ttg gaa agt gac atg gac aag gcc tca ttt gtg cag 480  
 Ala Glu Lys Pro Leu Glu Ser Asp Met Asp Lys Ala Ser Phe Val Gln  
 145 150 155 160

tgc tgc ctg ttc cat gag tca gga atg cct ttc acc agc agt gag gtt 528  
 Cys Cys Leu Phe His Glu Ser Gly Met Pro Phe Thr Ser Ser Glu Val  
 161 166 171 176

ggg aag gac ttc cta gcc cca ttg ggc att ctt cag ccg caa gct att 576

Gly	Lys	Asp	Phe	Leu	Ala	Pro	Leu	Gly	Ile	Leu	Gln	Pro	Gln	Ala	Ile		
177					182					187					192		
gct	aac	tat	gag	aag	cca	aac	aaa	atc	agc	aaa	tgt	gag	gag	gcc	ttt	624	
Ala	Asn	Tyr	Glu	Lys	Pro	Asn	Lys	Ile	Ser	Lys	Cys	Glu	Glu	Ala	Phe		
193					198					203					208		
cat	gtt	gga	ata	agt	cat	tac	aag	tgg	agt	caa	tgc	agg	aga	gag	tcc	672	
His	Val	Gly	Ile	Ser	His	Tyr	Lys	Trp	Ser	Gln	Cys	Arg	Arg	Glu	Ser		
209					214					219					224		
agc	cac	aaa	cac	act	ttt	ttt	cac	cct	aga	gtc	tgc	act	gga	aaa	agg	720	
Ser	His	Lys	His	Thr	Phe	Phe	His	Pro	Arg	Val	Cys	Thr	Gly	Lys	Arg		
225					230					235					240		
ctt	tat	gaa	tct	agc	aaa	tgt	ggg	aaa	gcc	tgc	tgc	tgt	gag	tgc	tcc	768	
Leu	Tyr	Glu	Ser	Ser	Lys	Cys	Gly	Lys	Ala	Cys	Cys	Cys	Glu	Cys	Ser		
241					246					251					256		
ctt	gtt	cag	ctg	caa	aga	gtc	cac	cct	gga	gaa	agg	cct	tat	gag	tgc	816	
Leu	Val	Gln	Leu	Gln	Arg	Val	His	Pro	Gly	Glu	Arg	Pro	Tyr	Glu	Cys		
257					262					267					272		
agt	gaa	tgt	ggg	aaa	tct	ttt	agc	caa	acc	tct	cat	ctg	aat	gat	cat	864	
Ser	Glu	Cys	Gly	Lys	Ser	Phe	Ser	Gln	Thr	Ser	His	Leu	Asn	Asp	His		
273					278					283					288		
cgg	aga	atc	cac	act	gga	gaa	agg	cct	tat	gtg	tgt	ggg	cag	tgt	ggg	912	
Arg	Arg	Ile	His	Thr	Gly	Glu	Arg	Pro	Tyr	Val	Cys	Gly	Gln	Cys	Gly		
289					294					299					304		
aaa	tca	ttt	agc	caa	aga	gcc	acc	ctc	att	aaa	cat	cac	aga	gtt	cac	960	
Lys	Ser	Phe	Ser	Gln	Arg	Ala	Thr	Leu	Ile	Lys	His	His	Arg	Val	His		
305					310					315					320		
act	gga	gaa	agg	cct	tac	gag	tgt	ggg	gaa	tgt	ggg	aaa	tct	ttt	agc	1008	
Thr	Gly	Glu	Arg	Pro	Tyr	Glu	Cys	Gly	Glu	Cys	Gly	Lys	Ser	Phe	Ser		
321					326					331					336		
caa	agt	tcc	aac	ctt	att	gaa	cat	tgc	aga	att	cac	act	gga	gaa	agg	1056	
Gln	Ser	Ser	Asn	Leu	Ile	Glu	His	Cys	Arg	Ile	His	Thr	Gly	Glu	Arg		
337					342					347					352		
cct	tat	gag	tgt	gat	gaa	tgt	gga	aaa	gcc	ttt	ggg	tcc	aaa	tcc	act	1104	
Pro	Tyr	Glu	Cys	Asp	Glu	Cys	Gly	Lys	Ala	Phe	Gly	Ser	Lys	Ser	Thr		
353					358					363					368		
ctt	gtt	cga	cac	cag	aga	act	cac	aca	gga	gaa	aag	cca	tat	gag	tgt	1152	
Leu	Val	Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Glu	Cys		
369					374					379					384		
ggg	gaa	tgt	ggg	aaa	tta	ttc	aga	caa	agc	ttc	agc	ctt	gtt	gta	cac	1200	
Gly	Glu	Cys	Gly	Lys	Leu	Phe	Arg	Gln	Ser	Phe	Ser	Leu	Val	Val	His		
385					390					395					400		
cag	aga	att	cac	act	aca	gca	agg	cct	tat	gag	tgt	ggc	cag	tgt	ggg	1248	
Gln	Arg	Ile	His	Thr	Thr	Ala	Arg	Pro	Tyr	Glu	Cys	Gly	Gln	Cys	Gly		

401	406	411	416	
aaa tca ttt agc cta aag tgt ggc ctc att cag cac cag tta att cac				1296
Lys Ser Phe Ser Leu Lys Cys Gly Leu Ile Gln His Gln Leu Ile His				
417	422	427	432	
agt gga gct agg ccc ttt gag tgt gat gag tgc gga aaa tcc ttt agc				1344
Ser Gly Ala Arg Pro Phe Glu Cys Asp Glu Cys Gly Lys Ser Phe Ser				
433	438	443	448	
caa aga acc acc ctc aat aaa cac cac aaa gtt cac act gca gaa agg				1392
Gln Arg Thr Thr Leu Asn Lys His His Lys Val His Thr Ala Glu Arg				
449	454	459	464	
cct tat gta tgt ggg gaa tgt ggg aaa gct ttt atg ttc aaa tct aaa				1440
Pro Tyr Val Cys Gly Glu Cys Gly Lys Ala Phe Met Phe Lys Ser Lys				
465	470	475	480	
ctt gtt agg cac cag aga act cac act gga gaa agg cct ttt gag tgc				1488
Leu Val Arg His Gln Arg Thr His Thr Gly Glu Arg Pro Phe Glu Cys				
481	486	491	496	
agt gaa tgt ggg aaa ttt ttt aga caa agc tat acc ctc gtt gaa cac				1536
Ser Glu Cys Gly Lys Phe Phe Arg Gln Ser Tyr Thr Leu Val Glu His				
497	502	507	512	
cag aaa att cac act gga tta agg cct tac gac tgt gga cag tgc ggg				1584
Gln Lys Ile His Thr Gly Leu Arg Pro Tyr Asp Cys Gly Gln Cys Gly				
513	518	523	528	
aaa tcc ttt atc caa aag tct agc ctc att caa cac caa gtg gtt cac				1632
Lys Ser Phe Ile Gln Lys Ser Ser Leu Ile Gln His Gln Val Val His				
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aca gga gaa agg cca tat gag tgt ggc aaa tgt ggg aag tcc ttt aca				1680
Thr Gly Glu Arg Pro Tyr Glu Cys Gly Lys Cys Gly Lys Ser Phe Thr				
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caa cac tct ggc ctc att ctc cac cga aaa tct cac act gtg gag agg				1728
Gln His Ser Gly Leu Ile Leu His Arg Lys Ser His Thr Val Glu Arg				
561	566	571	576	
cct cgt gac agc agc aaa tgt gga aaa ccc tac agc cca aga tct aac				1776
Pro Arg Asp Ser Ser Lys Cys Gly Lys Pro Tyr Ser Pro Arg Ser Asn				
577	582	587	592	
att gtt taa ctcttga aactccaaac ctgagaaaag ccttagacct gcagggaatg				1832
Ile Val *				
593				
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cggtcccagc gtccagagcg ccggcccttc ggctttcttct aggcc atg gca ggg	174
	Met Ala Gly
	1
ccg ggc cca ggc ccg ggg gac ccg gac gag cag tac gat ttc ctg ttc	222
Pro Gly Pro Gly Pro Gly Asp Pro Asp Glu Gln Tyr Asp Phe Leu Phe	
4 9 14 19	
aag ctg gtg ctg gtg ggc gac gca agc gtg ggc aag acg tgc gtg gtg	270
Lys Leu Val Leu Val Gly Asp Ala Ser Val Gly Lys Thr Cys Val Val	
20 25 30 35	
cag cgc ttc aag acc ggc gcc ttc tcg gag cgc cag gga agc acc atc	318
Gln Arg Phe Lys Thr Gly Ala Phe Ser Glu Arg Gln Gly Ser Thr Ile	
36 41 46 51	
ggc gtc gac ttc acc atg aag acg ctg gag atc cag ggc aag cgg gtc	366
Gly Val Asp Phe Thr Met Lys Thr Leu Glu Ile Gln Gly Lys Arg Val	
52 57 62 67	
aag ctg cag atc tgg gac acg gcc ggc cag gag cgg ttc cgc acc atc	414
Lys Leu Gln Ile Trp Asp Thr Ala Gly Gln Glu Arg Phe Arg Thr Ile	
68 73 78 83	
acc cag agc tac tac cgc agt gcc aat ggg gcc atc ctt gcc tac gac	462
Thr Gln Ser Tyr Tyr Arg Ser Ala Asn Gly Ala Ile Leu Ala Tyr Asp	
84 89 94 99	
atc acc aag agg agc tcc ttc ctg tcg gtg cct cac tgg att gag gat	510
Ile Thr Lys Arg Ser Ser Phe Leu Ser Val Pro His Trp Ile Glu Asp	
100 105 110 115	
gtg agg aag tat gcg ggc tcc aac att gtg cag ctg ctg atc ggg aac	558
Val Arg Lys Tyr Ala Gly Ser Asn Ile Val Gln Leu Leu Ile Gly Asn	
116 121 126 131	
aag tca gac ctg agc gag ctt cgg gag gtc tcc ttg gct gag gca cag	606
Lys Ser Asp Leu Ser Glu Leu Arg Glu Val Ser Leu Ala Glu Ala Gln	
132 137 142 147	
agc ctg gct gag cac tat gac atc ctg tgt gcc att gag acg tct gcc	654
Ser Leu Ala Glu His Tyr Asp Ile Leu Cys Ala Ile Glu Thr Ser Ala	
148 153 158 163	
aag gac tcg agc aac gtg gag gag gcc ttc ctg agg gtg gcc acg gag	702

Lys	Asp	Ser	Ser	Asn	Val	Glu	Glu	Ala	Phe	Leu	Arg	Val	Ala	Thr	Glu	
164					169					174					179	
ctc	atc	atg	cgg	cac	ggg	ggc	ccc	ttg	ttc	agc	gag	aag	agc	ccc	gac	750
Leu	Ile	Met	Arg	His	Gly	Gly	Pro	Leu	Phe	Ser	Glu	Lys	Ser	Pro	Asp	
180					185					190					195	
cac	atc	cag	ctg	aac	agc	aag	gac	atc	gga	gaa	ggc	tgg	ggc	tgc	ggg	798
His	Ile	Gln	Leu	Asn	Ser	Lys	Asp	Ile	Gly	Glu	Gly	Trp	Gly	Cys	Gly	
196					201					206					211	
tgc	tga	ccagggg	ccg	ggccggc	caga	ctggggg	gttc	cccac	ctc	ct	tgctct	cccc				854
Cys	*															
212																
agcctg	ccaa	gcccag	ccct	ccagag	ccag	ccctc	ctggg	taccg	gcaac	tacag	cagcc					914
gggtg	aagct	ctggag	ctct	gcac	ctgtg	gcctg	gctgc	gggat	ggagg	ctctc	cttga					974
ggaag	gggaa	gcagg	atacc	ctggc	ggggc	accct	gccag	ccagc	cagctg	gcctc	ccacc					1034
atctt	cacat	tccaag	actg	gcctg	aacc	gccgg	tgtgg	gccac	agtgg	gaggg	gccag					1094
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aaaaaaaa	aaaaatt	caa	ctaata	cttt	agtcatt	gtg	acttta	agaa	agagact	ttgg						240
tcacct	tttac	tgtaac	actc	agacat	catt	tacttc	agtt	gatgg	agatt	tcaaaatt	cc					300
ttttcaa	aag	agctaa	acat	acaaac	acca	tgaaaa	agtc	acctag	gcct	tgcaaa	acgg					360
aaactta	gaa	aacgtg	agaa	aatacag	cac	tatcag	tcct	tgaaatt	gcg	aagatg	tcaa					420
ctggct	tagag	tttaata	aca	agaatg	agta	aactct	ggga	attctg	aaaa	atcacaca						480
tgaaac	atac	agtctag	tta	tcatttc	tag	acttcct	gct	cattaaaa	aa	taatgg	taac					540
ctgaag	atgt	cacact	gctt	ctctac	agat	ttgact	gggtt	tctggg	ttct	gcctaaa	agg					600

accctgttgg caacaaccta agttcacttg tactgatcac attttccaag tactctagtc 660  
 ggttaattta cactttattt ttttaaaaag ttgatttaaa aaagaaacaa cacaagttta 720  
 gaatccataa aatgtcagca atgctgatgt gcactggact gaaacatctt gatcatcttc 780  
 tgatagaagt aatattccat acaaaaagat tcttagattc catttttttg ttcattattg 840  
 tttgtggctt gctttctttg agcaataaag gggtagacac acttgctccg tcctaggaac 900  
 cgatac atg cac aca act gct tca aat ggt agg atg ctc ttc atg aag 948  
 Met His Thr Thr Ala Ser Asn Gly Arg Met Leu Phe Met Lys  
 1 5 10  
 gtc acg atg tac atg agg cgg gga gtg cag atc atg ggc tgg tca gtg 996  
 Val Thr Met Tyr Met Arg Arg Gly Val Gln Ile Met Gly Trp Ser Val  
 15 20 25 30  
 agg atg gcc ttc atg gcc tgc ttc aca cag taa tcaggctt cagaggtggc 1047  
 Arg Met Ala Phe Met Ala Cys Phe Thr Gln \*  
 31 36 41  
 agaaaaggct caatttcttt cctgaaagtt atttattcaa aaacaaaatg aaaaattaac 1107  
 tcaatagaaa agactggaaa tacatatcaa aacattaaca gtgatgttat ctgagtgatg 1167  
 ggattttggg tacattttgt tttcttcata gtgcttttct gtattttcca aattttcctg 1227  
 ctatgaacac attttattgg cacagtctgg agaacaagtt gggaaaaaaa agcaaaattg 1287  
 gtctgctttt ccataagatg aaaaagtcac gtttttaaga tgccttaaaa gtatttcaaa 1347  
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 gcgcttcccc ccattgctta gctgcccctc ctgtggcgtg agccttcggc ctggtgcgcc 180  
 ccgctgccct tcttggtgt gactctggtg gggttccgaa ggccccctta tgccggcgag 240  
 accctaccg acggcggcat tacattctgg ggccacgagg aggcactcat cgtttcgttc 300

caaccgccgc caacggccct ggccctcgcg agctctggaa ctacagaggt cgcacgccccg	360
ggcagtgagt gtgg atg gct tgg cag gtg agc ctg ctg gag ctg gag gac	410
Met Ala Trp Gln Val Ser Leu Leu Glu Leu Glu Asp	
1 5 10	
cgg ctt cag tgt ccc atc tgc ctg gag gtc ttc aag gag tcc cta atg	458
Arg Leu Gln Cys Pro Ile Cys Leu Glu Val Phe Lys Glu Ser Leu Met	
13 18 23 28	
cta cag tgc ggc cac tcc tac tgc aag ggc tgc ctg gtt tcc ctg tcc	506
Leu Gln Cys Gly His Ser Tyr Cys Lys Gly Cys Leu Val Ser Leu Ser	
29 34 39 44	
tac cac ctg gac acc aag gtg cgc tgc ccc atg tgc tgg cag gtg gtg	554
Tyr His Leu Asp Thr Lys Val Arg Cys Pro Met Cys Trp Gln Val Val	
45 50 55 60	
gac ggc agc agc tcc ttg ccc aac gtc tcc ctg gcc tgg gtg atc gaa	602
Asp Gly Ser Ser Ser Leu Pro Asn Val Ser Leu Ala Trp Val Ile Glu	
61 66 71 76	
gcc ctg agg ctc cct ggg gac ccg gag ccc aag gtc tgc gtg cac cac	650
Ala Leu Arg Leu Pro Gly Asp Pro Glu Pro Lys Val Cys Val His His	
77 82 87 92	
cgg aac ccg ctc agc ctt ttc tgc gag aag gac cag gag ctc atc tgt	698
Arg Asn Pro Leu Ser Leu Phe Cys Glu Lys Asp Gln Glu Leu Ile Cys	
93 98 103 108	
ggc ctc tgc ggt ctg ctg ggc tcc cac caa cac cac ccg gtc acg ccc	746
Gly Leu Cys Gly Leu Leu Gly Ser His Gln His His Pro Val Thr Pro	
109 114 119 124	
gtc tcc acc gtc tgc agc cgc atg aag gag gag ctc gca gcc ctc ttc	794
Val Ser Thr Val Cys Ser Arg Met Lys Glu Glu Leu Ala Ala Leu Phe	
125 130 135 140	
tct gag ctg aag cag gag cag aag aag gtg gat gag ctc atc gcc aaa	842
Ser Glu Leu Lys Gln Glu Gln Lys Lys Val Asp Glu Leu Ile Ala Lys	
141 146 151 156	
ctg gtg aaa aac cgg acc cga atc gtc aat gag tgc gat gtc ttc agc	890
Leu Val Lys Asn Arg Thr Arg Ile Val Asn Glu Ser Asp Val Phe Ser	
157 162 167 172	
tgg gtg atc cgc cgc gag ttc cag gag ctg cgc cac ccg gtg gac gag	938
Trp Val Ile Arg Arg Glu Phe Gln Glu Leu Arg His Pro Val Asp Glu	
173 178 183 188	
gag cag gcc cgc tgc ctg gag ggg ata ggg ggt cac acc cgt ggc ctg	986
Glu Gln Ala Arg Cys Leu Glu Gly Ile Gly Gly His Thr Arg Gly Leu	
189 194 199 204	
gtg gcc tcc ctg gac atg cag ctg gag cag gcc cag gga acc cgg gag	1034
Val Ala Ser Leu Asp Met Gln Leu Glu Gln Ala Gln Gly Thr Arg Glu	

205	210	215	220	
cgg ctg gcc caa gcc gag tgt gtg ctg gaa cag ttc ggc aat gag gac				1082
Arg Leu Ala Gln Ala Glu Cys Val Leu Glu Gln Phe Gly Asn Glu Asp				
221	226	231	236	
cac cat gag ttc atc tgg aag ttc cac tcc atg gcc tcc agg taa taa				1130
His His Glu Phe Ile Trp Lys Phe His Ser Met Ala Ser Arg *				
237	242	247		
ccttggagag agctcagcca ggggtctggtg gctgcgggca cgggcatctc agctccactg				1190
gttcctccat tcagcttaac cagcgcctcc caagcagctg cctatagctg gctctataac				1250
tgagcctggg gaagatagag gaaagtcacg tccctgcctt caagggtctc gcagacaggt				1310
ggggaggcag atggtgaact gtgggtacct agaacagcag aagttcactc aagctacaga				1370
aatactagag gaggggtggct catgcctgca atcccagtac tttgggaggg caaggcagga				1430
gtattgctgg aggccgggag ttcgagacca gcctggccaa tgtagtaaca cccccgtctc				1490
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	Met Ala Pro Leu Asp Leu Asp Lys Tyr Val Glu Ile Ala			
	1 5 10			
cgg ctg tgc aag tac ctg cca gag aac gac ctg aag cgg cta tgt gac				157
Arg Leu Cys Lys Tyr Leu Pro Glu Asn Asp Leu Lys Arg Leu Cys Asp				
14 19 24 29				
tac gtt tgt gac ctc ctc tta gaa gag tca aat gtt cag cca gta tca				205
Tyr Val Cys Asp Leu Leu Leu Glu Glu Ser Asn Val Gln Pro Val Ser				
30 35 40 45				
aca cca gta aca gtg tgt gga gat atc cat gga cag ttt tat gac ctt				253
Thr Pro Val Thr Val Cys Gly Asp Ile His Gly Gln Phe Tyr Asp Leu				
46 51 56 61				
tgt gaa ctg ttc aga act gga ggt cag gtt cct gac aca aac tac ata				301
Cys Glu Leu Phe Arg Thr Gly Gly Gln Val Pro Asp Thr Asn Tyr Ile				

62	67	72	77	
ttt atg ggt gat ttt gta gac aga ggt tac tat agt ttg gag acc ttc	349			
Phe Met Gly Asp Phe Val Asp Arg Gly Tyr Tyr Ser Leu Glu Thr Phe				
78 83 88 93				
act tac ctt ctt gca tta aag gct aaa tgg cct gat cgt att aca ctt	397			
Thr Tyr Leu Leu Ala Leu Lys Ala Lys Trp Pro Asp Arg Ile Thr Leu				
94 99 104 109				
ttg cga gga aat cat gag agt aga cag ata aca cag gtc tat gga ttt	445			
Leu Arg Gly Asn His Glu Ser Arg Gln Ile Thr Gln Val Tyr Gly Phe				
110 115 120 125				
tat gat gag tgc caa acc aaa tat gga aat gct aat gcc tgg aga tac	493			
Tyr Asp Glu Cys Gln Thr Lys Tyr Gly Asn Ala Asn Ala Trp Arg Tyr				
126 131 136 141				
tgt acc aaa gtt ttt gac atg ctc aca gta gca gct tta ata gat gag	541			
Cys Thr Lys Val Phe Asp Met Leu Thr Val Ala Ala Leu Ile Asp Glu				
142 147 152 157				
cag att ttg tgt gtc cat ggt ggt tta tct cct gat atc aaa aca ctg	589			
Gln Ile Leu Cys Val His Gly Gly Leu Ser Pro Asp Ile Lys Thr Leu				
158 163 168 173				
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Asp Gln Ile Arg Thr Ile Glu Arg Asn Gln Glu Ile Pro His Lys Gly				
174 179 184 189				
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Ala Phe Cys Asp Leu Val Trp Ser Asp Pro Glu Asp Val Asp Thr Trp				
190 195 200 205				
gct atc agt ccc cga gga gca ggt tgg ctt ttt gga gca aag gtc aca	733			
Ala Ile Ser Pro Arg Gly Ala Gly Trp Leu Phe Gly Ala Lys Val Thr				
206 211 216 221				
aat gag ttt gtt cat atc aac aac tta aaa ctc atc tgc aga gca cat	781			
Asn Glu Phe Val His Ile Asn Asn Leu Lys Leu Ile Cys Arg Ala His				
222 227 232 237				
caa cta gtg cac gaa ggc tat aaa ttt atg ttt gat gag aag ctg gtg	829			
Gln Leu Val His Glu Gly Tyr Lys Phe Met Phe Asp Glu Lys Leu Val				
238 243 248 253				
aca gta tgg tct gct cct aat tac tgc tat cgt tgt gga aat att gct	877			
Thr Val Trp Ser Ala Pro Asn Tyr Cys Tyr Arg Cys Gly Asn Ile Ala				
254 259 264 269				
tcg atc atg gtc ttc aaa gat gta aat aca aga gaa cca aag tta ttc	925			
Ser Ile Met Val Phe Lys Asp Val Asn Thr Arg Glu Pro Lys Leu Phe				
270 275 280 285				
cgg gca gtt cca gat tca gaa cgt gtt att cct ccc aga acg aca acg	973			
Arg Ala Val Pro Asp Ser Glu Arg Val Ile Pro Pro Arg Thr Thr Thr				
286 291 296 301				

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cca tat ttc ctt tga ggccttcgcc catcctgctg acccattttt ctgccctctt    1028
Pro Tyr Phe Leu *
302

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tgaaatgctg cctcttgcc tttttttttt aaattttaaa ttatctaaat ttattgtttg    1148
ttgtgggtgc tatagcaaag tttttctatc aattttcccc catcccatcc ccaccctgga    1208
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cacctaaata ctccctcttt tgtatcattc agccttttgt tttagtttg taagtttta    1388
gaaatttcag cagcaaagt gttattcagt gggcacgatg gactccaaat gcctcaagtt    1448
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aactgctaca gcttatgact ttgtacttta agataattgt attgatcttt tttcagattc    1628
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agtgttcatt tttaaactgc aactggaaag gttgaaaagt taggactctt gtatttgtga    2108
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<222> (193) .. (1776)

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<400> 312

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taaagcttgg	atgggggtttg	acctctgcag	ggcagcgccc	agctatagga	gttcccctgc	180
tgagcagaga	ag	atg act gca gaa ttg aga gaa gcc atg gcc cta gcc				228
		Met Thr Ala Glu Leu Arg Glu Ala Met Ala Leu Ala				
		1 5 10				
cca tgg ggc cca gtg aag gtg aaa aag gag gag gaa gaa gaa gaa aac						276
Pro Trp Gly Pro Val Lys Val Lys Lys Glu Glu Glu Glu Glu Asn						
13 18 23 28						
ttc cca ggt cag gca tcc agc caa caa gtg cac tcc gag aac atc aaa						324
Phe Pro Gly Gln Ala Ser Ser Gln Gln Val His Ser Glu Asn Ile Lys						
29 34 39 44						
gtc tgg gcc cca gtg cag ggt ctt cag aca ggc ctt gat gga tca gaa						372
Val Trp Ala Pro Val Gln Gly Leu Gln Thr Gly Leu Asp Gly Ser Glu						
45 50 55 60						
gag gaa gaa aag ggt cag aac ata tcc tgg gat atg gcg gta gtc ctg						420
Glu Glu Glu Lys Gly Gln Asn Ile Ser Trp Asp Met Ala Val Val Leu						
61 66 71 76						
aaa gca act cag gag gca cct gct gct tca acc ctt ggc agc tac tca						468
Lys Ala Thr Gln Glu Ala Pro Ala Ala Ser Thr Leu Gly Ser Tyr Ser						
77 82 87 92						
tta cca ggg act ctg gcc aag agt gag ata ctg gag act cat ggg acc						516
Leu Pro Gly Thr Leu Ala Lys Ser Glu Ile Leu Glu Thr His Gly Thr						
93 98 103 108						
atg aac ttt cta ggt gct gaa acc aag aac cta cag tta ctg gtt cca						564
Met Asn Phe Leu Gly Ala Glu Thr Lys Asn Leu Gln Leu Leu Val Pro						
109 114 119 124						
aaa act gag ata tgt gag gaa gct gaa aaa ccc ctc atc ata tca gaa						612
Lys Thr Glu Ile Cys Glu Glu Ala Glu Lys Pro Leu Ile Ile Ser Glu						
125 130 135 140						
aga atc cag aaa gct gat cct caa gga cct gag tta gga gaa gct tgt						660
Arg Ile Gln Lys Ala Asp Pro Gln Gly Pro Glu Leu Gly Glu Ala Cys						
141 146 151 156						
gaa aag gga aac atg tta aag agg cag aga ata aag aga gaa aag aaa						708
Glu Lys Gly Asn Met Leu Lys Arg Gln Arg Ile Lys Arg Glu Lys Lys						
157 162 167 172						
gat ttc aga caa gtg ata gtg aat gac tgt cac tta cct gaa agc ttc						756
Asp Phe Arg Gln Val Ile Val Asn Asp Cys His Leu Pro Glu Ser Phe						
173 178 183 188						
aaa gaa gag gaa aac cag aaa tgt aag aaa tct gga gga aaa tat agc						804
Lys Glu Glu Glu Asn Gln Lys Cys Lys Lys Ser Gly Gly Lys Tyr Ser						

189	194	199	204	
ctt aat tct ggc gct gtt aaa aat cca aaa acc cag ctt gga caa aag				852
Leu Asn Ser Gly Ala Val Lys Asn Pro Lys Thr Gln Leu Gly Gln Lys				
205	210	215	220	
cct ttt acg tgt agc gtg tgt ggg aaa gga ttt agt cag agt gca aac				900
Pro Phe Thr Cys Ser Val Cys Gly Lys Gly Phe Ser Gln Ser Ala Asn				
221	226	231	236	
ctc gtt gtg cat cag cga atc cac act gga gag aaa ccc ttt gaa tgt				948
Leu Val Val His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Glu Cys				
237	242	247	252	
cat gag tgt ggg aag gcc ttc att cag agt gca aac ctc gtt gtg cat				996
His Glu Cys Gly Lys Ala Phe Ile Gln Ser Ala Asn Leu Val Val His				
253	258	263	268	
cag aga atc cac act gga cag aaa cct tat gtt tgc tca aaa tgt ggg				1044
Gln Arg Ile His Thr Gly Gln Lys Pro Tyr Val Cys Ser Lys Cys Gly				
269	274	279	284	
aaa gcc ttc act cag agt tca aat ctg act gta cat caa aaa atc cac				1092
Lys Ala Phe Thr Gln Ser Ser Asn Leu Thr Val His Gln Lys Ile His				
285	290	295	300	
tcc tta gaa aaa act ttt aag tgc aat gaa tgt gag aaa gcc ttt agt				1140
Ser Leu Glu Lys Thr Phe Lys Cys Asn Glu Cys Glu Lys Ala Phe Ser				
301	306	311	316	
tac agc tca caa ctt gct cgg cac cag aaa gtc cac att acg gaa aaa				1188
Tyr Ser Ser Gln Leu Ala Arg His Gln Lys Val His Ile Thr Glu Lys				
317	322	327	332	
tgc tat gaa tgt aat gaa tgt ggg aaa aca ttt act agg agc tca aac				1236
Cys Tyr Glu Cys Asn Glu Cys Gly Lys Thr Phe Thr Arg Ser Ser Asn				
333	338	343	348	
ctc att gtc cac cag agg atc cac act ggg gag aag ccc ttt gcc tgt				1284
Leu Ile Val His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Ala Cys				
349	354	359	364	
aac gac tgt ggc aaa gcc ttt acc cag agt gca aat ctt att gta cat				1332
Asn Asp Cys Gly Lys Ala Phe Thr Gln Ser Ala Asn Leu Ile Val His				
365	370	375	380	
cag cga agc cat act ggt gag aag cca tat gag tgt aaa gag tgt ggg				1380
Gln Arg Ser His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Glu Cys Gly				
381	386	391	396	
aaa gcc ttt agt tgt ttt tca cac ctt att gtg cac cag aga att cac				1428
Lys Ala Phe Ser Cys Phe Ser His Leu Ile Val His Gln Arg Ile His				
397	402	407	412	
act gca gag aaa cct tac gac tgc agc gaa tgt ggg aaa gcc ttc agt				1476
Thr Ala Glu Lys Pro Tyr Asp Cys Ser Glu Cys Gly Lys Ala Phe Ser				
413	418	423	428	

cag ctc tct tgc ctt att gtc cac cag aga att cac agt gga gat ctt	1524
Gln Leu Ser Cys Leu Ile Val His Gln Arg Ile His Ser Gly Asp Leu	
429 434 439 444	
cct tac gtg tgt aat gaa tgt ggg aag gcc ttc aca tgt agc tca tac	1572
Pro Tyr Val Cys Asn Glu Cys Gly Lys Ala Phe Thr Cys Ser Ser Tyr	
445 450 455 460	
cta ctt att cat cag aga att cat aat gga gaa aaa cct tac aca tgt	1620
Leu Leu Ile His Gln Arg Ile His Asn Gly Glu Lys Pro Tyr Thr Cys	
461 466 471 476	
aat gag tgt ggg aag gcc ttc aga cag agg tcg agc ctc acc gtg cac	1668
Asn Glu Cys Gly Lys Ala Phe Arg Gln Arg Ser Ser Leu Thr Val His	
477 482 487 492	
cag aga acc cac act ggg gag aag ccc tat gaa tgt gag aag tgt ggt	1716
Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly	
493 498 503 508	
gca gct ttc att tcc aac tca cac ctc atg cga cac cat aga acc cat	1764
Ala Ala Phe Ile Ser Asn Ser His Leu Met Arg His His Arg Thr His	
509 514 519 524	
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Leu Val Glu *	
525	
tgccctcccta atgagacacc tctttgctgt tttcttctctc ctctataaaa gtgagggctg	1879
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cgctgggtcc	gggccaggta	actggagccg	gaaaccgggtg	gaggtggtgt	ccgcccgcag	180
aggagcttgc	ctgggtctcg	tctgagcgtc	gccacgcgat	ttgccaccgc	acgcacgcgc	240
gatccccgggc	tttaccgccc	gcctttccag	gccccgcccc	gcctaaagtc	cc atg	295
					Met	
					1	
gcc gag gca gcg cta gtg aat acg ccg cag att ccc atg gta aca gaa	343					
Ala Glu Ala Ala Leu Val Asn Thr Pro Gln Ile Pro Met Val Thr Glu						
2 7 12 17						
gag ttt gtg aaa cca tca cag ggc cat gtg acc ttt gag gat att gct	391					
Glu Phe Val Lys Pro Ser Gln Gly His Val Thr Phe Glu Asp Ile Ala						
18 23 28 33						
gtg tac ttc tcc cag gag gag tgg ggc ctc ctt gat gaa gct caa agg	439					
Val Tyr Phe Ser Gln Glu Glu Trp Gly Leu Leu Asp Glu Ala Gln Arg						
34 39 44 49						
tgc ctg tat cat gat gtg atg ctg gag aac ttt tcg ctt atg gcc tca	487					
Cys Leu Tyr His Asp Val Met Leu Glu Asn Phe Ser Leu Met Ala Ser						
50 55 60 65						
gta ggt tgt ttg cat gga ata gag gct gag gag gcc cct tct gag cag	535					
Val Gly Cys Leu His Gly Ile Glu Ala Glu Glu Ala Pro Ser Glu Gln						
66 71 76 81						
act ctt tct gcg caa gga gtg tca cag gcc agg act cca aag cta ggt	583					
Thr Leu Ser Ala Gln Gly Val Ser Gln Ala Arg Thr Pro Lys Leu Gly						
82 87 92 97						
cct tcc atc cca aat gct cat tct tgt gag atg tgt atc ctg gtc atg	631					
Pro Ser Ile Pro Asn Ala His Ser Cys Glu Met Cys Ile Leu Val Met						
98 103 108 113						
aaa gac att ttg tac ctc agt gag cat cag ggg aca ctt ccc tgg cag	679					
Lys Asp Ile Leu Tyr Leu Ser Glu His Gln Gly Thr Leu Pro Trp Gln						
114 119 124 129						

aaa cct tat acg tct	gtg gcc agt ggg aaa tgg ttt tca ttt ggt tct	727
Lys Pro Tyr Thr Ser	Val Ala Ser Gly Lys Trp Phe Ser Phe Gly Ser	
130	135 140 145	
aac ctg caa cag cac	cag aac cag gac agt gga gag aaa cac atc aga	775
Asn Leu Gln Gln His	Gln Asn Gln Asp Ser Gly Glu Lys His Ile Arg	
146	151 156 161	
aag gag gag agc agt	gcc ttg ctt ctg aat agc tgc aaa att cct ctg	823
Lys Glu Glu Ser Ser	Ala Leu Leu Leu Asn Ser Cys Lys Ile Pro Leu	
162	167 172 177	
tca gac aat ctt ttc	cca tgc aaa gat gtt gag aag gat ttt cca acc	871
Ser Asp Asn Leu Phe	Pro Cys Lys Asp Val Glu Lys Asp Phe Pro Thr	
178	183 188 193	
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Ile Leu Gly Leu Leu	Gln His Gln Thr Thr His Ser Arg Gln Glu Tyr	
194	199 204 209	
gca cat aga agc agg	gag acc ttt caa caa aga cgt tac aaa tgt gag	967
Ala His Arg Ser Arg	Glu Thr Phe Gln Gln Arg Arg Tyr Lys Cys Glu	
210	215 220 225	
caa gtt ttc aat gag	aaa gtt cat gtt act gag cat cag aga gtc cac	1015
Gln Val Phe Asn Glu	Lys Val His Val Thr Glu His Gln Arg Val His	
226	231 236 241	
act gga gaa aaa gct	tat aag cgt agg gaa tat ggg aaa tcc ttg aac	1063
Thr Gly Glu Lys Ala	Tyr Lys Arg Arg Glu Tyr Gly Lys Ser Leu Asn	
242	247 252 257	
tct aaa tac tta ttt	gtt gaa cac cag aga acc cat aat gca gaa aag	1111
Ser Lys Tyr Leu Phe	Val Glu His Gln Arg Thr His Asn Ala Glu Lys	
258	263 268 273	
cct tat gtg tgc aat	ata tgt ggg aaa tca ttc ctc cat aaa caa aca	1159
Pro Tyr Val Cys Asn	Ile Cys Gly Lys Ser Phe Leu His Lys Gln Thr	
274	279 284 289	
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Leu Val Gly His Gln	Gln Arg Ile His Thr Arg Glu Arg Ser Tyr Val	
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Cys Ile Glu Cys Gly	Lys Ser Leu Ser Ser Lys Tyr Ser Leu Val Glu	
306	311 316 321	
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His Gln Arg Thr His	Asn Gly Glu Lys Pro Tyr Val Cys Asn Val Cys	
322	327 332 337	
ggg aaa tca ttc cgc	cac aaa caa aca ttt gtt ggc cat cag cag aga	1351
Gly Lys Ser Phe Arg	His Lys Gln Thr Phe Val Gly His Gln Gln Arg	
338	343 348 353	
atc cac act gga gag	agg cct tat gtg tgt atg gaa tgt ggg aaa tct	1399

Ile	His	Thr	Gly	Glu	Arg	Pro	Tyr	Val	Cys	Met	Glu	Cys	Gly	Lys	Ser	
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Phe	Ile	His	Ser	Tyr	Asp	Arg	Ile	Arg	His	Gln	Arg	Val	His	Thr	Gly	
370					375					380					385	
gaa	ggg	gct	tat	cag	tgc	agt	gaa	tgt	ggg	aaa	tcc	ttc	ata	tac	aaa	1495
Glu	Gly	Ala	Tyr	Gln	Cys	Ser	Glu	Cys	Gly	Lys	Ser	Phe	Ile	Tyr	Lys	
386					391					396					401	
cag	tca	ctt	ctt	gat	cac	cat	aga	atc	cac	acg	gga	gaa	agg	cct	tat	1543
Gln	Ser	Leu	Leu	Asp	His	His	Arg	Ile	His	Thr	Gly	Glu	Arg	Pro	Tyr	
402					407					412					417	
gag	tgc	aaa	gaa	tgt	ggg	aag	gcc	ttc	att	cac	aaa	aaa	aga	ctt	ctt	1591
Glu	Cys	Lys	Glu	Cys	Gly	Lys	Ala	Phe	Ile	His	Lys	Lys	Arg	Leu	Leu	
418					423					428					433	
gag	cac	cag	aga	att	cat	act	gga	gaa	aag	cct	tat	gtg	tgc	atc	ata	1639
Glu	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Val	Cys	Ile	Ile	
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tgt	ggg	aaa	tca	ttt	atc	cgc	tcg	tct	gac	tac	atg	cga	cac	cag	aga	1687
Cys	Gly	Lys	Ser	Phe	Ile	Arg	Ser	Ser	Asp	Tyr	Met	Arg	His	Gln	Arg	
450					455					460					465	
att	cac	act	gga	gaa	agg	gct	tat	gaa	tgc	agt	gac	tgt	ggg	aaa	gcc	1735
Ile	His	Thr	Gly	Glu	Arg	Ala	Tyr	Glu	Cys	Ser	Asp	Cys	Gly	Lys	Ala	
466					471					476					481	
ttc	atc	tcc	aaa	caa	aca	ctt	ctt	aag	cat	cac	aaa	atc	cac	act	aga	1783
Phe	Ile	Ser	Lys	Gln	Thr	Leu	Leu	Lys	His	His	Lys	Ile	His	Thr	Arg	
482					487					492					497	
gaa	agg	cct	tat	gaa	tgc	agt	gaa	tgt	gga	aaa	ggc	ttc	tac	ctt	gag	1831
Glu	Arg	Pro	Tyr	Glu	Cys	Ser	Glu	Cys	Gly	Lys	Gly	Phe	Tyr	Leu	Glu	
498					503					508					513	
gtt	aaa	ctt	ctt	cag	cac	caa	aga	atc	cat	act	aga	gaa	caa	ctt	tgt	1879
Val	Lys	Leu	Leu	Gln	His	Gln	Arg	Ile	His	Thr	Arg	Glu	Gln	Leu	Cys	
514					519					524					529	
gag	tgc	aat	gaa	tgt	gga	aaa	gtc	ttc	agc	cac	caa	aaa	aga	ctt	ctt	1927
Glu	Cys	Asn	Glu	Cys	Gly	Lys	Val	Phe	Ser	His	Gln	Lys	Arg	Leu	Leu	
530					535					540					545	
gag	cac	cag	aaa	gtt	cac	act	ggc	gaa	aag	ccc	tgt	gag	tgc	agt	gaa	1975
Glu	His	Gln	Lys	Val	His	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Cys	Ser	Glu	
546					551					556					561	
tgt	ggg	aaa	tgc	ttt	aga	cac	cgc	acc	agc	ctc	att	caa	cac	cag	aaa	2023
Cys	Gly	Lys	Cys	Phe	Arg	His	Arg	Thr	Ser	Leu	Ile	Gln	His	Gln	Lys	
562					567					572					577	
gtt	cac	agt	gga	gag	agg	cct	tat	aac	tgc	act	gca	tgt	gag	aag	gcc	2071
Val	His	Ser	Gly	Glu	Arg	Pro	Tyr	Asn	Cys	Thr	Ala	Cys	Glu	Lys	Ala	

578	583	588	593	
ttt atc tat aaa aac	aaa ctt gtt gag cat	cag cga atc cac acc	gga	2119
Phe Ile Tyr Lys Asn	Lys Leu Val Glu His	Gln Arg Ile His Thr	Gly	
594	599	604	609	
gaa aag ccg tat gaa	tgt ggt aaa tgt ggg	aaa gcc ttc aac aaa	aga	2167
Glu Lys Pro Tyr Glu	Cys Gly Lys Cys Gly	Lys Ala Phe Asn Lys	Arg	
610	615	620	625	
tat tcc ctt gtc agg	cac cag aag gta cat	ata aca gaa gag ccc	tag	2215
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 Glu Ile Pro Ala Thr Ser Arg Ser Ser Glu Glu Lys Ala Pro Thr Leu  
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 Pro Ser Asp Asn His Arg Val Glu Gly Thr Ala Trp Leu Pro Gly Asn  
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 Pro Gly Gly Arg Gly His Gly Gly Gly Arg His Gly Pro Ala Gly Thr  
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 Gln Leu Ile Pro Pro Thr Ala Asn Pro Val Thr Ser Ala Val Ala Ser  
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 gcc gca ggg gcc acc act cca tcc cag cgc tcc cag ctg gag gcc tat 1604  
 Ala Ala Gly Ala Thr Thr Pro Ser Gln Arg Ser Gln Leu Glu Ala Tyr  
 162 167 172 177  
 tcc act ctg ctg gcc aac atg ggc agt ctg agc cag acg ccg gga cac 1652  
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Gln Gln Gln Gln Gln His Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln	
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Gln Gln Gln Gln Gln Gln His Leu Ser Arg Ala Pro Gly Leu Ile Thr	
226 231 236 241	
ccg ggg tcc ccc cca cca gcc cag cag aac cag tac gtc cac att tcc	1844
Pro Gly Ser Pro Pro Pro Ala Gln Gln Asn Gln Tyr Val His Ile Ser	
242 247 252 257	
agt tct ccg cag aac acc ggc cgc acc gcc tct cct ccg gcc atc ccc	1892
Ser Ser Pro Gln Asn Thr Gly Arg Thr Ala Ser Pro Pro Ala Ile Pro	
258 263 268 273	
gtc cac ctc cac ccc cac cag acg atg atc cca cac acg ctc acc ctg	1940
Val His Leu His Pro His Gln Thr Met Ile Pro His Thr Leu Thr Leu	
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Gly Pro Pro Ser Gln Val Val Met Gln Tyr Ala Asp Ser Gly Ser His	
290 295 300 305	
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Phe Val Pro Arg Glu Ala Thr Lys Lys Ala Glu Ser Ser Arg Leu Gln	
306 311 316 321	
cag gcc atc cag gcc aag gag gtc ctg aac ggt gag atg gag aag agc	2084
Gln Ala Ile Gln Ala Lys Glu Val Leu Asn Gly Glu Met Glu Lys Ser	
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cgg cgg tac ggg gcc ccg tcc tca gcc gac ctg ggc ctg ggc aag gca	2132
Arg Arg Tyr Gly Ala Pro Ser Ser Ala Asp Leu Gly Leu Gly Lys Ala	
338 343 348 353	
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Gly Gly Lys Ser Val Pro His Pro Tyr Glu Ser Arg His Val Val Val	
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His Pro Ser Pro Ser Asp Tyr Ser Ser Arg Asp Pro Ser Gly Val Arg	
370 375 380 385	
gcc tct gtg atg gtc ctg ccc aac agc aac acg ccc gca gct gac ctg	2276
Ala Ser Val Met Val Leu Pro Asn Ser Asn Thr Pro Ala Ala Asp Leu	
386 391 396 401	
gag gtg caa cag gcc act cat cgt gaa gcc tcc cct tct acc ctc aac	2324
Glu Val Gln Gln Ala Thr His Arg Glu Ala Ser Pro Ser Thr Leu Asn	
402 407 412 417	
gac aaa agt ggc ctg cat tta ggg aag cct ggc cac ccg tcc tac gcg	2372

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Ala Glu Glu Lys Gly Thr Gln Ala Gly Glu Ile His Asp Leu Lys Asp	
13 18 23 28	

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Met Leu Asp Val Lys Glu Arg Lys Val Asn Val Leu Gln Lys Lys Ile	
29 34 39 44	

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Glu Asn Leu Gln Glu Gln Leu Arg Asp Lys Glu Lys Gln Met Ser Ser	
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Leu Lys Glu Arg Val	Lys Ser Leu Gln Ala	Asp Thr Thr Asn Thr Asp	
61	66	76	
act gcc ttg aca act	ttg gag gag gcc ctt	gca gag aaa gag cgg aca	411
Thr Ala Leu Thr Thr	Leu Glu Glu Ala Leu	Ala Glu Lys Glu Arg Thr	
77	82	92	
att gaa cgc tta aag	gag cag agg gac aga	gat gag cga gag aag caa	459
Ile Glu Arg Leu Lys	Glu Gln Arg Asp Arg	Asp Glu Arg Glu Lys Gln	
93	98	108	
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Glu Glu Ile Asp Asn	Tyr Lys Lys Asp Leu	Lys Asp Leu Lys Glu Lys	
109	114	124	
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Val Ser Leu Leu Gln	Gly Asp Leu Ser Glu	Lys Glu Ala Ser Leu Leu	
125	130	140	
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Asp Leu Lys Glu His	Ala Ser Ser Leu Ala	Ser Ser Gly Leu Lys Lys	
141	146	156	
gac tca cgg ctt aag	aca cta gag att gct	ttg gag cag aag aag gag	651
Asp Ser Arg Leu Lys	Thr Leu Glu Ile Ala	Leu Glu Gln Lys Lys Glu	
157	162	172	
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Glu Cys Leu Lys Met	Glu Ser Gln Leu Lys	Lys Ala His Glu Ala Ala	
173	178	188	
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189	194	204	
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Glu Arg Glu Ile Thr	Arg Tyr Lys Asp Glu	Ser Ser Lys Ala Gln Ala	
205	210	220	
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Glu Val Asp Arg Leu	Leu Glu Ile Leu Lys	Glu Val Glu Asn Glu Lys	
221	226	236	
aat gac aaa gat aag	aag ata gct gag ttg	gaa agt ctc acc tca agg	891
Asn Asp Lys Asp Lys	Lys Ile Ala Glu Leu	Glu Ser Leu Thr Ser Arg	
237	242	252	
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Gln Val Lys Asp Gln	Asn Lys Lys Val Ala	Asn Leu Lys His Lys Glu	
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cag gtg gaa aaa aag	aag agt gca caa atg	tta gag gag gcg cga cga	987
Gln Val Glu Lys Lys	Lys Ser Ala Gln Met	Leu Glu Glu Ala Arg Arg	
269	274	284	

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Arg Glu Asp Asn Leu Asn Asp Ser Ser Gln Gln Leu Gln Asp Ser Leu	
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Arg Lys Lys Asp Asp Arg Ile Glu Glu Leu Glu Glu Ala Leu Arg Glu	
301 306 311 316	
agt gta cag ata act gca gag cgg gaa atg gtg cta gca caa gag gaa	1131
Ser Val Gln Ile Thr Ala Glu Arg Glu Met Val Leu Ala Gln Glu Glu	
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Ser Ala Arg Thr Asn Ala Glu Lys Gln Val Glu Glu Leu Leu Met Ala	
333 338 343 348	
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Met Glu Lys Val Lys Gln Glu Leu Glu Ser Met Lys Ala Lys Leu Ser	
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Ser Thr Gln Gln Ser Leu Ala Glu Lys Glu Thr His Leu Thr Asn Leu	
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Leu Glu Leu Ser Ser Ser Lys Lys Lys Thr Gln Glu Glu Val Ala Ala	
413 418 423 428	
ctg aag cgg gag aag gat cgt ctg gta cag cag ctt aag cag cag acg	1467
Leu Lys Arg Glu Lys Asp Arg Leu Val Gln Gln Leu Lys Gln Gln Thr	
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ggcaggcgga tcacctgaga tcaggagttc gagggcagcc tggccaagat ggcaaaaacc	5095
cggactctac taaaaataca aaattagcca ggctgggtgg cgtacgctg taatcccagc	5155
tactcaggag gcaggagaat cgcttgagcc tgggaggcag aggctgcggt gagccgagat	5215

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5256

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cctcgagttt gagagctacc cggagctcca agacaggggg gggttccagc tgccccgcacg 180  
ccccgacctt ccctcgtagg ccggacc atg gga acc cca aag cca cgg atc 231  
Met Gly Thr Pro Lys Pro Arg Ile  
1 5  
ctg ccc tgg ctg gtg tgc cag ctg gac ctg ggg caa ctg gag ggc gtg 279  
Leu Pro Trp Leu Val Ser Gln Leu Asp Leu Gly Gln Leu Glu Gly Val  
9 14 19 24  
gcc tgg gtg aac aag agc cgc acg cgc ttc cgc atc cct tgg aag cac 327  
Ala Trp Val Asn Lys Ser Arg Thr Arg Phe Arg Ile Pro Trp Lys His  
25 30 35 40  
ggc cta cgg cag gat gca cag cag gag gat ttc gga atc ttc cag gcc 375  
Gly Leu Arg Gln Asp Ala Gln Gln Glu Asp Phe Gly Ile Phe Gln Ala  
41 46 51 56  
tgg gcc gag gcc act ggt gca tat gtt ccc ggg agg gat aag cca gac 423  
Trp Ala Glu Ala Thr Gly Ala Tyr Val Pro Gly Arg Asp Lys Pro Asp  
57 62 67 72  
ctg cca acc tgg aag agg aat ttc cgc tct gcc ctc aac cgc aaa gaa 471  
Leu Pro Thr Trp Lys Arg Asn Phe Arg Ser Ala Leu Asn Arg Lys Glu  
73 78 83 88  
ggg ttg cgt tta gca gag gac cgg agc aag gac cct cac gac cca cat 519  
Gly Leu Arg Leu Ala Glu Asp Arg Ser Lys Asp Pro His Asp Pro His  
89 94 99 104  
aaa atc tac gag ttt gtg aac tca gga gtt ggg gac ttt tcc cag cca 567  
Lys Ile Tyr Glu Phe Val Asn Ser Gly Val Gly Asp Phe Ser Gln Pro  
105 110 115 120  
gac acc tct ccg gac acc aat ggt gga ggc agt act tct gat acc cag 615  
Asp Thr Ser Pro Asp Thr Asn Gly Gly Gly Ser Thr Ser Asp Thr Gln  
121 126 131 136

gaa gac att ctg gat gag tta ctg ggt aac atg gtg ttg gcc cca ctc	663
Glu Asp Ile Leu Asp Glu Leu Leu Gly Asn Met Val Leu Ala Pro Leu	
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cca gat ccg gga ccc cca agc ctg gct gta gcc cct gag ccc tgc cct	711
Pro Asp Pro Gly Pro Pro Ser Leu Ala Val Ala Pro Glu Pro Cys Pro	
153 158 163 168	
cag ccc ctg cgg agc ccc agc ttg gac aat ccc act ccc ttc cca aac	759
Gln Pro Leu Arg Ser Pro Ser Leu Asp Asn Pro Thr Pro Phe Pro Asn	
169 174 179 184	
ctg ggg ccc tct gag aac cca ctg aag cgg ctg ttg gtg ccg ggg gaa	807
Leu Gly Pro Ser Glu Asn Pro Leu Lys Arg Leu Leu Val Pro Gly Glu	
185 190 195 200	
gag tgg gag ttc gag gtg aca gcc ttc tac cgg ggc cgc caa gtc ttc	855
Glu Trp Glu Phe Glu Val Thr Ala Phe Tyr Arg Gly Arg Gln Val Phe	
201 206 211 216	
cag cag acc atc tcc tgc ccg gag ggc ctg cgg ctg gtg ggg tcc gaa	903
Gln Gln Thr Ile Ser Cys Pro Glu Gly Leu Arg Leu Val Gly Ser Glu	
217 222 227 232	
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Val Gly Asp Arg Thr Leu Pro Gly Trp Pro Val Thr Leu Pro Asp Pro	
233 238 243 248	
ggc atg tcc ctg aca gac agg gga gtg atg agc tac gtg agg cat gtg	999
Gly Met Ser Leu Thr Asp Arg Gly Val Met Ser Tyr Val Arg His Val	
249 254 259 264	
ctg agc tgc ctg ggt ggg gga ctg gct ctc tgg cgg gcc ggg cag tgg	1047
Leu Ser Cys Leu Gly Gly Gly Leu Ala Leu Trp Arg Ala Gly Gln Trp	
265 270 275 280	
ctc tgg gcc cag cgg ctg ggg cac tgc cac aca tac tgg gca gtg agc	1095
Leu Trp Ala Gln Arg Leu Gly His Cys His Thr Tyr Trp Ala Val Ser	
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Glu Glu Leu Leu Pro Asn Ser Gly His Gly Pro Asp Gly Glu Val Pro	
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Lys Asp Lys Glu Gly Gly Val Phe Asp Leu Gly Pro Phe Ile Val Asp	
313 318 323 328	
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Leu Ile Thr Phe Thr Glu Gly Ser Gly Arg Ser Pro Arg Tyr Ala Leu	
329 334 339 344	
tgg ttc tgt gtg ggg gag tca tgg ccc cag gac cag ccg tgg acc aag	1287
Trp Phe Cys Val Gly Glu Ser Trp Pro Gln Asp Gln Pro Trp Thr Lys	
345 350 355 360	

agg ctc gtg atg gtc aag gtt gtg ccc acg tgc ctc agg gcc ttg gta 1335  
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 361 366 371 376

gaa atg gcc cgg gta ggg ggt gcc tcc tcc ctg gag aat act gtg gac 1383  
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 377 382 387 392

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 393 398 403 408

aag gcc tac ctg cag gac ttg gtg gag ggc atg gat ttc cag ggc cct 1479  
 Lys Ala Tyr Leu Gln Asp Leu Val Glu Gly Met Asp Phe Gln Gly Pro  
 409 414 419 424

ggg gag agc tga gcc ctgctctc atggtgtgcc tccaaccccc ctgttcccca 1534  
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 Lys Ala Ala Ala Ala Asn Ala Val Gly Leu Phe Ser Arg Leu Gln Ala  
 6 11 16 21

ccc att cca aca gta aga gct tct tcc aca tca cag ccc ttg gat caa 149  
 Pro Ile Pro Thr Val Arg Ala Ser Ser Thr Ser Gln Pro Leu Asp Gln  
 22 27 32 37

gtg aca ggt tct gtg tgg aac ctg ggt cga ctc aac cat gta gcc ata 197  
 Val Thr Gly Ser Val Trp Asn Leu Gly Arg Leu Asn His Val Ala Ile  
 38 43 48 53

gca gtg cca gat ttg gaa aag gct gca gca ttt tat aag aat att ctg 245  
 Ala Val Pro Asp Leu Glu Lys Ala Ala Ala Phe Tyr Lys Asn Ile Leu  
 54 59 64 69

ggg gcc cag gta agt gaa gcg gtc cct ctt cct gaa cat gga gta tct 293  
 Gly Ala Gln Val Ser Glu Ala Val Pro Leu Pro Glu His Gly Val Ser

70	75	80	85	
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Val Val Phe Val Asn Leu Gly Asn Thr Lys Met Glu Leu Leu His Pro				
86	91	96	101	
ttg gga cgt gac agt cca att gca ggt ttt ctg cag aaa aac aag gct				389
Leu Gly Arg Asp Ser Pro Ile Ala Gly Phe Leu Gln Lys Asn Lys Ala				
102	107	112	117	
gga gga atg cat cac atc tgc atc gag gtg gat aat att aat gca gct				437
Gly Gly Met His His Ile Cys Ile Glu Val Asp Asn Ile Asn Ala Ala				
118	123	128	133	
gtg atg gat ttg aaa aaa aag aag atc cgc agt cta agt gaa gag gtc				485
Val Met Asp Leu Lys Lys Lys Lys Ile Arg Ser Leu Ser Glu Glu Val				
134	139	144	149	
aaa ata gga gca cat gga aaa cca gtg att ttt ctc cat cct aaa gac				533
Lys Ile Gly Ala His Gly Lys Pro Val Ile Phe Leu His Pro Lys Asp				
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Cys Gly Gly Val Leu Val Glu Leu Glu Gln Ala *				
166	171	176		
caactaaatt aattgacctg aaaaagccta tcaaatacta tcaaaatgta ctatgacatt				643
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ttaaaatata tacatatata aatacataaa tatgtatatt atttagatta acaaacatat				763
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Ser Asn Leu Val Leu Gln Ala Asp Arg Ser Leu Ile Asp Arg Thr Arg				
17	22	27	32	

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Arg Asp Glu Pro Thr Gly Glu Val Leu Ser Leu Val Gly Lys Leu Glu	
33 38 43 48	
ggc acc cgt atg gga gac aag gct caa cgg acc aaa ccg cag atg cag	192
Gly Thr Arg Met Gly Asp Lys Ala Gln Arg Thr Lys Pro Gln Met Gln	
49 54 59 64	
gag gaa aga aga gcc aag cga aga aag cgt gat gag gac cgg cat gac	240
Glu Glu Arg Arg Ala Lys Arg Arg Lys Arg Asp Glu Asp Arg His Asp	
65 70 75 80	
atc aac aag atg aag ggt tat act ctg ctg tcc gag ggc att gat gag	288
Ile Asn Lys Met Lys Gly Tyr Thr Leu Leu Ser Glu Gly Ile Asp Glu	
81 86 91 96	
atg gtg ggc atc atc tac aag ccc aaa act aaa gag act cgg gag acc	336
Met Val Gly Ile Ile Tyr Lys Pro Lys Thr Lys Glu Thr Arg Glu Thr	
97 102 107 112	
tat gag gtg cta ctc agc ttc atc cag gct gct ctt ggg gac cag cca	384
Tyr Glu Val Leu Leu Ser Phe Ile Gln Ala Ala Leu Gly Asp Gln Pro	
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cgt gat atc ctt tgt ggg gca gct gat gaa gtt cta gct gtt cta aag	432
Arg Asp Ile Leu Cys Gly Ala Ala Asp Glu Val Leu Ala Val Leu Lys	
129 134 139 144	
aat gaa aag ctg cgg gac aag gaa agg cga aag gag att gac ctg ctg	480
Asn Glu Lys Leu Arg Asp Lys Glu Arg Arg Lys Glu Ile Asp Leu Leu	
145 150 155 160	
ctg ggt caa aca gat gat acc aga tac cat gtg cta gtg aac ctg ggc	528
Leu Gly Gln Thr Asp Asp Thr Arg Tyr His Val Leu Val Asn Leu Gly	
161 166 171 176	
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Lys Lys Ile Thr Asp Tyr Gly Gly Asp Lys Glu Ile Gln Asn Met Asp	
177 182 187 192	
gac aac att gat gag aca tac ggt gtg aat gtg cag ttt gag tct gat	624
Asp Asn Ile Asp Glu Thr Tyr Gly Val Asn Val Gln Phe Glu Ser Asp	
193 198 203 208	
gag gag gaa ggt gat gaa gac gta tac ggg gag gtt cga gaa gag gca	672
Glu Glu Glu Gly Asp Glu Asp Val Tyr Gly Glu Val Arg Glu Glu Ala	
209 214 219 224	
tct gat gat gac atg gaa ggg gac gag gct gtc gtg cgc tgc acc ctc	720
Ser Asp Asp Asp Met Glu Gly Asp Glu Ala Val Val Arg Cys Thr Leu	
225 230 235 240	
tcc gct aat atg tat gtt gat gaa atc tta gtc tgg tgt gct tct gaa	768
Ser Ala Asn Met Tyr Val Asp Glu Ile Leu Val Trp Cys Ala Ser Glu	
241 246 251 256	
ctc aat att cca gag ttt ttt cct ctg gaa agt cct cac aag aag gtg	816

1107

Leu Asn Ile Pro Glu Phe Phe Pro Leu Glu Ser Pro His Lys Lys Val	
257 262 267 272	
ggc tat gga ttg tca agt aga act tgg ttg cag ggt ggt ggc aaa gtg	864
Gly Tyr Gly Leu Ser Ser Arg Thr Trp Leu Gln Gly Gly Gly Lys Val	
273 278 283 288	
atc gag gct ggc aga gac ctg ctc gta gcc tca ggt gaa ctg atg agt	912
Ile Glu Ala Gly Arg Asp Leu Leu Val Ala Ser Gly Glu Leu Met Ser	
289 294 299 304	
tcc aag aag aag gat ttg cac cct cgg gat att gat gca ttt tgg ctg	960
Ser Lys Lys Lys Asp Leu His Pro Arg Asp Ile Asp Ala Phe Trp Leu	
305 310 315 320	
cag cgg cag ctc agt cgt ttc tat gat gat gcc atc gtg tcg cag aag	1008
Gln Arg Gln Leu Ser Arg Phe Tyr Asp Asp Ala Ile Val Ser Gln Lys	
321 326 331 336	
aag gca gat gaa gta ttg gag att ttg aag acg gcc agt gat gat cgg	1056
Lys Ala Asp Glu Val Leu Glu Ile Leu Lys Thr Ala Ser Asp Asp Arg	
337 342 347 352	
gaa tgt gaa aat cag ctg gtt ctg ctg ctt ggt ttc aac acc ttt gat	1104
Glu Cys Glu Asn Gln Leu Val Leu Leu Leu Gly Phe Asn Thr Phe Asp	
353 358 363 368	
ttc att aaa gtg ttg cgg cag cac agg atg atg att tta tac tgt acc	1152
Phe Ile Lys Val Leu Arg Gln His Arg Met Met Ile Leu Tyr Cys Thr	
369 374 379 384	
ttg ctg gcc agt gca caa agt gaa gct gaa aag gaa agg att atg gga	1200
Leu Leu Ala Ser Ala Gln Ser Glu Ala Glu Lys Glu Arg Ile Met Gly	
385 390 395 400	
aag atg gaa gct gac cca gag cta tcc aag ttc ctc tac cag ctt cat	1248
Lys Met Glu Ala Asp Pro Glu Leu Ser Lys Phe Leu Tyr Gln Leu His	
401 406 411 416	
gaa acc gag aag gag gat ctg atc cga gag gaa agg tcc cgg aga gag	1296
Glu Thr Glu Lys Glu Asp Leu Ile Arg Glu Glu Arg Ser Arg Arg Glu	
417 422 427 432	
cga gtg cgt cag tct cga atg gac aca gat ctg gaa acc atg gat ctc	1344
Arg Val Arg Gln Ser Arg Met Asp Thr Asp Leu Glu Thr Met Asp Leu	
433 438 443 448	
gac cag ggt gga gag gca ctg gct cca cgg cag gtt ctg gac ttg gag	1392
Asp Gln Gly Gly Glu Ala Leu Ala Pro Arg Gln Val Leu Asp Leu Glu	
449 454 459 464	
gac ctg gtt ttt acc caa ggg agc cac ttt atg gcc aat aaa cgc tgt	1440
Asp Leu Val Phe Thr Gln Gly Ser His Phe Met Ala Asn Lys Arg Cys	
465 470 475 480	
cag ctt cct gat gga tcc ttc cgt cgc cag cgt aag ggc tat gaa gag	1488
Gln Leu Pro Asp Gly Ser Phe Arg Arg Gln Arg Lys Gly Tyr Glu Glu	

481	486	491	496	
gtg cat gtg cct gct	ctg aag ccc aag ccc	ttt ggc tca gaa gaa caa	1536	
Val His Val Pro Ala	Leu Lys Pro Lys Pro	Phe Gly Ser Glu Glu Gln		
497	502	507	512	
ctg ctt cca gtg gaa aag	ctg cca aag tat gcc	cag gct ggg ttt gag	1584	
Leu Leu Pro Val Glu Lys	Leu Pro Lys Tyr Ala	Gln Ala Gly Phe Glu		
513	518	523	528	
ggc ttc aaa aca ctg aat	cgg atc cag agt aag	ctc tac cgt gct gcc	1632	
Gly Phe Lys Thr Leu Asn	Arg Ile Gln Ser Lys	Leu Tyr Arg Ala Ala		
529	534	539	544	
ctt gag acg gat gag aat	ctg ctg ctg tgt gct	cct act ggt gct ggg	1680	
Leu Glu Thr Asp Glu Asn	Leu Leu Leu Cys Ala	Pro Thr Gly Ala Gly		
545	550	555	560	
aag acc aac gtg gcc ctg	atg tgc atg ctc cga	gag att ggg aaa cac	1728	
Lys Thr Asn Val Ala Leu	Met Cys Met Leu Arg	Glu Ile Gly Lys His		
561	566	571	576	
ata aac atg gac ggc acc	atc aat gtg gat gac	ttc aag att atc tac	1776	
Ile Asn Met Asp Gly Thr	Ile Asn Val Asp Asp	Phe Lys Ile Ile Tyr		
577	582	587	592	
att gcc ccc atg cgc tcc	ttg gtg cag gag atg	gtg ggc agc ttt gga	1824	
Ile Ala Pro Met Arg Ser	Leu Val Gln Glu Met	Val Gly Ser Phe Gly		
593	598	603	608	
aag cgc ctg gcc act tat	ggc atc act gtt gct	gaa ctg act ggg gac	1872	
Lys Arg Leu Ala Thr Tyr	Gly Ile Thr Val Ala	Glu Leu Thr Gly Asp		
609	614	619	624	
cac cag ctg tgc aaa gaa	gag atc agt gcc act	cag atc atc gtc tgc	1920	
His Gln Leu Cys Lys Glu	Glu Ile Ser Ala Thr	Gln Ile Ile Val Cys		
625	630	635	640	
acc ccc gag aag tgg gac	atc atc acc cgc aag	ggt ggt gag cgc acc	1968	
Thr Pro Glu Lys Trp Asp	Ile Ile Thr Arg Lys	Gly Gly Glu Arg Thr		
641	646	651	656	
tac acc cag ctg gtg cgg	ctc atc att ctg gat	gag att cat ctt ctc	2016	
Tyr Thr Gln Leu Val Arg	Leu Ile Ile Leu Asp	Glu Ile His Leu Leu		
657	662	667	672	
cac gat gac aga ggt cct	gtc tta gaa gct tta	gtg gcc agg gcc atc	2064	
His Asp Asp Arg Gly Pro	Val Leu Glu Ala Leu	Val Ala Arg Ala Ile		
673	678	683	688	
cga aac att gag atg acc	caa gag gat gtc cga	ctc att ggt ctc agt	2112	
Arg Asn Ile Glu Met Thr	Gln Glu Asp Val Arg	Leu Ile Gly Leu Ser		
689	694	699	704	
gcc acc cta ccc aac tat	gaa gat gta gcc acc	ttt cta cgt gtt gac	2160	
Ala Thr Leu Pro Asn Tyr	Glu Asp Val Ala Thr	Phe Leu Arg Val Asp		
705	710	715	720	

cct gcc aag ggt ctc ttt tac ttt gac aac agc ttc cgt cca gtg cct	2208
Pro Ala Lys Gly Leu Phe Tyr Phe Asp Asn Ser Phe Arg Pro Val Pro	
721 726 731 736	
ctg gaa cag aca tat gtg ggt atc aca gag aaa aaa gct atc aag cgt	2256
Leu Glu Gln Thr Tyr Val Gly Ile Thr Glu Lys Lys Ala Ile Lys Arg	
737 742 747 752	
ttc cag atc atg aat gaa ata gtc tat gaa aaa atc atg gaa cat gct	2304
Phe Gln Ile Met Asn Glu Ile Val Tyr Glu Lys Ile Met Glu His Ala	
753 758 763 768	
gga aaa aat cag gtg ctc gtg ttt gtc cat tct cgc aaa gaa act ggg	2352
Gly Lys Asn Gln Val Leu Val Phe Val His Ser Arg Lys Glu Thr Gly	
769 774 779 784	
aag aca gca agg gca atc cgt gac atg tgt ctg gag aag gac act ttg	2400
Lys Thr Ala Arg Ala Ile Arg Asp Met Cys Leu Glu Lys Asp Thr Leu	
785 790 795 800	
ggt ctg ttt ctt cgc gag ggt tct gcc tcc act gaa gtc ctt cgt aca	2448
Gly Leu Phe Leu Arg Glu Gly Ser Ala Ser Thr Glu Val Leu Arg Thr	
801 806 811 816	
gaa gca gag cag tgc aag aac ttg gag ctg aag gat ctt ttg ccc tat	2496
Glu Ala Glu Gln Cys Lys Asn Leu Glu Leu Lys Asp Leu Leu Pro Tyr	
817 822 827 832	
ggc ttt gct att cat cat gca ggc atg act aga gtt gac cga aca ctt	2544
Gly Phe Ala Ile His His Ala Gly Met Thr Arg Val Asp Arg Thr Leu	
833 838 843 848	
gta gaa gat ctt ttt ggt gac aag cat att cag gtt tta gtt tcc acc	2592
Val Glu Asp Leu Phe Gly Asp Lys His Ile Gln Val Leu Val Ser Thr	
849 854 859 864	
gca act ctg gcg tgg ggt gta aat ctt cct gca cat aca gtc atc att	2640
Ala Thr Leu Ala Trp Gly Val Asn Leu Pro Ala His Thr Val Ile Ile	
865 870 875 880	
aaa ggt acc caa gtg tac agt cca gag aag ggg cgt tgg aca gag ctg	2688
Lys Gly Thr Gln Val Tyr Ser Pro Glu Lys Gly Arg Trp Thr Glu Leu	
881 886 891 896	
gga gca ctg gat atc ctg cag atg ctg ggc cgt gct gga cgg ccg cag	2736
Gly Ala Leu Asp Ile Leu Gln Met Leu Gly Arg Ala Gly Arg Pro Gln	
897 902 907 912	
tat gac acc aag ggt gaa ggc atc ctc atc aca tcc cat ggg gag ctc	2784
Tyr Asp Thr Lys Gly Glu Gly Ile Leu Ile Thr Ser His Gly Glu Leu	
913 918 923 928	
cag tac tac ctc tcc ctc ctc aac cag cag ctg cct atc gag agc cag	2832
Gln Tyr Tyr Leu Ser Leu Leu Asn Gln Gln Leu Pro Ile Glu Ser Gln	
929 934 939 944	

atg gtc tcc aag ctg cct gac atg ctc aat gcg gaa att gtt ctg ggc	2880
Met Val Ser Lys Leu Pro Asp Met Leu Asn Ala Glu Ile Val Leu Gly	
945 950 955 960	
aat gtc cag aat gca aag gat gca gtg aac tgg ctg ggc tat gcc tac	2928
Asn Val Gln Asn Ala Lys Asp Ala Val Asn Trp Leu Gly Tyr Ala Tyr	
961 966 971 976	
cta tac atc cga atg ctc egg tcc cct acc ctc tat ggc att tct cat	2976
Leu Tyr Ile Arg Met Leu Arg Ser Pro Thr Leu Tyr Gly Ile Ser His	
977 982 987 992	
gat gac ctc aag gga gat ccc ttg ctg gac cag cgc cga ctc gat ctt	3024
Asp Asp Leu Lys Gly Asp Pro Leu Leu Asp Gln Arg Arg Leu Asp Leu	
993 998 1003 1008	
gtt cac act gct gcc ttg atg ctg gac aag aac aat ctg gtc aag tac	3072
Val His Thr Ala Ala Leu Met Leu Asp Lys Asn Asn Leu Val Lys Tyr	
1009 1014 1019 1024	
gac aag aag aca ggc aac ttc cag gtg aca gaa ctt ggc cgg ata gca	3120
Asp Lys Lys Thr Gly Asn Phe Gln Val Thr Glu Leu Gly Arg Ile Ala	
1025 1030 1035 1040	
agt cac tac tat atc acc aat gat act gtg cag acc tac aac cag ctg	3168
Ser His Tyr Tyr Ile Thr Asn Asp Thr Val Gln Thr Tyr Asn Gln Leu	
1041 1046 1051 1056	
ctg aag cct act ctg agt gag att gag ctt ttc cga gtg ttc tcc ttg	3216
Leu Lys Pro Thr Leu Ser Glu Ile Glu Leu Phe Arg Val Phe Ser Leu	
1057 1062 1067 1072	
tcc tca gag ttc aag aac atc act gta aga gag gag gag aag ctg gag	3264
Ser Ser Glu Phe Lys Asn Ile Thr Val Arg Glu Glu Glu Lys Leu Glu	
1073 1078 1083 1088	
ctg cag aag ttg ctg gag aga gtg ccc atc cct gta aag gag agc att	3312
Leu Gln Lys Leu Leu Glu Arg Val Pro Ile Pro Val Lys Glu Ser Ile	
1089 1094 1099 1104	
gag gaa ccc agc gct aag atc aac gtg ctt ctc caa gcc ttc atc tca	3360
Glu Glu Pro Ser Ala Lys Ile Asn Val Leu Leu Gln Ala Phe Ile Ser	
1105 1110 1115 1120	
cag ctg aaa ctc gaa ggc ttt gcg ctg atg gct gac atg gtg tat gtg	3408
Gln Leu Lys Leu Glu Gly Phe Ala Leu Met Ala Asp Met Val Tyr Val	
1121 1126 1131 1136	
acc cag tcg gct ggc cgg ttg atg cgt gca atc ttc gaa att gtc ctg	3456
Thr Gln Ser Ala Gly Arg Leu Met Arg Ala Ile Phe Glu Ile Val Leu	
1137 1142 1147 1152	
aac cga ggt tgg gca cag ctt aca gat aag acc ctg aat ctc tgc aag	3504
Asn Arg Gly Trp Ala Gln Leu Thr Asp Lys Thr Leu Asn Leu Cys Lys	
1153 1158 1163 1168	
atg att gac aag cgc atg tgg cag tcc atg tgt cct ctt cgc cag ttc	3552

Met Ile Asp Lys Arg Met Trp Gln Ser Met Cys Pro Leu Arg Gln Phe	
1169 1174 1179 1184	
cga aaa ctt cct gag gaa gta gtg aag aag att gag aag aaa aac ttc	3600
Arg Lys Leu Pro Glu Glu Val Val Lys Lys Ile Glu Lys Lys Asn Phe	
1185 1190 1195 1200	
ccc ttt gag cgg ctg tat gac ttg aat cat aat gag ata ggt gaa ctt	3648
Pro Phe Glu Arg Leu Tyr Asp Leu Asn His Asn Glu Ile Gly Glu Leu	
1201 1206 1211 1216	
att cga atg ccg aag atg ggg aag acc atc cac aag tat gtc cat ctt	3696
Ile Arg Met Pro Lys Met Gly Lys Thr Ile His Lys Tyr Val His Leu	
1217 1222 1227 1232	
ttc ccc aag ttg gag ttg tca gtg cac ctg cag cct att aca cgc tct	3744
Phe Pro Lys Leu Glu Leu Ser Val His Leu Gln Pro Ile Thr Arg Ser	
1233 1238 1243 1248	
acg ctg aaa gta gag ctg act atc aca cca gat ttc cag tgg gat gaa	3792
Thr Leu Lys Val Glu Leu Thr Ile Thr Pro Asp Phe Gln Trp Asp Glu	
1249 1254 1259 1264	
aag gtc cat ggt tgg tca gag gca ttt tgg att ctg gtg gag gat gtg	3840
Lys Val His Gly Ser Ser Glu Ala Phe Trp Ile Leu Val Glu Asp Val	
1265 1270 1275 1280	
gac agc gag gtg att ctg cac cat gaa tat ttt ctg ctg aag gcc aag	3888
Asp Ser Glu Val Ile Leu His His Glu Tyr Phe Leu Leu Lys Ala Lys	
1281 1286 1291 1296	
tat gcc cag gat gag cac ctc atc aca ttc ttt gtt cca gtc ttt gaa	3936
Tyr Ala Gln Asp Glu His Leu Ile Thr Phe Phe Val Pro Val Phe Glu	
1297 1302 1307 1312	
cca cta cct cct cag tac ttc att cga gta gtg tct gat cgc tgg ctc	3984
Pro Leu Pro Pro Gln Tyr Phe Ile Arg Val Val Ser Asp Arg Trp Leu	
1313 1318 1323 1328	
tct tgt gag acg cag cta cct gtc tcc ttc cgg cat ctg atc cta cca	4032
Ser Cys Glu Thr Gln Leu Pro Val Ser Phe Arg His Leu Ile Leu Pro	
1329 1334 1339 1344	
gag aag tac cca cct cca act gaa ctg ttg gac ctg cag cca ttg cct	4080
Glu Lys Tyr Pro Pro Thr Glu Leu Leu Asp Leu Gln Pro Leu Pro	
1345 1350 1355 1360	
gtg tct gct ctg aga aac agt gct ttt gag agc ctt tac caa gat aaa	4128
Val Ser Ala Leu Arg Asn Ser Ala Phe Glu Ser Leu Tyr Gln Asp Lys	
1361 1366 1371 1376	
ttt cct ttc ttc aat ccc atc cag act caa gta ttt aat acc gtg tac	4176
Phe Pro Phe Phe Asn Pro Ile Gln Thr Gln Val Phe Asn Thr Val Tyr	
1377 1382 1387 1392	
aac agt gat gat aac gtg ttt gtg ggg gcc ccc acg ggc agc ggg aag	4224
Asn Ser Asp Asp Asn Val Phe Val Gly Ala Pro Thr Gly Ser Gly Lys	

1393	1398	1403	1408	
act atc tgc gcg gag ttt gcc atc ctt cgg atg ctg ctg cag aat tct				4272
Thr Ile Cys Ala Glu Phe Ala Ile Leu Arg Met Leu Leu Gln Asn Ser				
1409	1414	1419	1424	
gag gga cgc tgt gtc tac att acc cct atg agg ctc tgg cag gag cag				4320
Glu Gly Arg Cys Val Tyr Ile Thr Pro Met Arg Leu Trp Gln Glu Gln				
1425	1430	1435	1440	
gta tac atg gac tgg tat gag aag ttt cag gac agg ctc aac aag aag				4368
Val Tyr Met Asp Trp Tyr Glu Lys Phe Gln Asp Arg Leu Asn Lys Lys				
1441	1446	1451	1456	
gtc gtg ctg ctg acg ggg gag acc agc aca gac ctg aag ctc ctg ggc				4416
Val Val Leu Leu Thr Gly Glu Thr Ser Thr Asp Leu Lys Leu Leu Gly				
1457	1462	1467	1472	
aaa ggc aac atc atc atc agt acc cct gag aag tgg gac atc ctc tct				4464
Lys Gly Asn Ile Ile Ile Ser Thr Pro Glu Lys Trp Asp Ile Leu Ser				
1473	1478	1483	1488	
cgg agg tgg aag cag cgc aag aac gtc cag aac att aac ctc ttt gtg				4512
Arg Arg Trp Lys Gln Arg Lys Asn Val Gln Asn Ile Asn Leu Phe Val				
1489	1494	1499	1504	
gtg gat gag gtc cac ctt att ggg ggc gag aat ggg cct gtc ttg gaa				4560
Val Asp Glu Val His Leu Ile Gly Gly Glu Asn Gly Pro Val Leu Glu				
1505	1510	1515	1520	
gtg atc tgc tcc cgg atg cgc tac atc tcc tcc cag att gag cgg ccc				4608
Val Ile Cys Ser Arg Met Arg Tyr Ile Ser Ser Gln Ile Glu Arg Pro				
1521	1526	1531	1536	
att cgc att gtg gca ctt agc tcc tca ctc tcc aat gcc aag gat gtg				4656
Ile Arg Ile Val Ala Leu Ser Ser Ser Leu Ser Asn Ala Lys Asp Val				
1537	1542	1547	1552	
gct cac tgg ctg ggc tgc agt gcc acc tcc acc ttc aac ttc cat cct				4704
Ala His Trp Leu Gly Cys Ser Ala Thr Ser Thr Phe Asn Phe His Pro				
1553	1558	1563	1568	
aat gtg cgc cct gta cct ttg gaa ctg cac atc cag ggc ttc aac atc				4752
Asn Val Arg Pro Val Pro Leu Glu Leu His Ile Gln Gly Phe Asn Ile				
1569	1574	1579	1584	
agt cac aca cag act cgc ctg ctc tct atg gcc aag cct gtg ttc cat				4800
Ser His Thr Gln Thr Arg Leu Leu Ser Met Ala Lys Pro Val Phe His				
1585	1590	1595	1600	
gct atc acc aaa cac tca ccc aag aag cct gtc atc gtt ttt gtc cca				4848
Ala Ile Thr Lys His Ser Pro Lys Lys Pro Val Ile Val Phe Val Pro				
1601	1606	1611	1616	
tct cgt aag cag acc cgc ctc act gca ata gac atc ctc act acc tgt				4896
Ser Arg Lys Gln Thr Arg Leu Thr Ala Ile Asp Ile Leu Thr Thr Cys				
1617	1622	1627	1632	

gca gca gac atc cag cgg cag agg ttc ctg cac tgc acc gag aag gac	4944
Ala Ala Asp Ile Gln Arg Gln Arg Phe Leu His Cys Thr Glu Lys Asp	
1633 1638 1643 1648	
ctg atc cct tac ctg gag aag ctc agt gac agc aca ctc aaa gag acc	4992
Leu Ile Pro Tyr Leu Glu Lys Leu Ser Asp Ser Thr Leu Lys Glu Thr	
1649 1654 1659 1664	
ctg tta aat ggg gtg ggc tac ctg cat gaa ggc ctg agc ccc atg gag	5040
Leu Leu Asn Gly Val Gly Tyr Leu His Glu Gly Leu Ser Pro Met Glu	
1665 1670 1675 1680	
agg cgc ctg gta gag cag ctc ttc agc tcc ggg gct atc cag gtg gtg	5088
Arg Arg Leu Val Glu Gln Leu Phe Ser Ser Gly Ala Ile Gln Val Val	
1681 1686 1691 1696	
gta gct tct cgg agt ctc tgc tgg ggc atg aat gtt gct gct cat cta	5136
Val Ala Ser Arg Ser Leu Cys Trp Gly Met Asn Val Ala Ala His Leu	
1697 1702 1707 1712	
gtg atc atc atg gat act ctg tac tac aat ggc aag atc cat gcc tat	5184
Val Ile Ile Met Asp Thr Leu Tyr Tyr Asn Gly Lys Ile His Ala Tyr	
1713 1718 1723 1728	
gtg gat tac ccc atc tat gat gtg ctt cag atg gtg ggc cat gcc aac	5232
Val Asp Tyr Pro Ile Tyr Asp Val Leu Gln Met Val Gly His Ala Asn	
1729 1734 1739 1744	
cgg ccc ctg cag gat gat gag ggg cgc tgt gtc atc atg tgt cag ggt	5280
Arg Pro Leu Gln Asp Asp Glu Gly Arg Cys Val Ile Met Cys Gln Gly	
1745 1750 1755 1760	
tct aaa aag gat ttt ttc aaa aaa ttt ttg tat gag cca ttg cca gta	5328
Ser Lys Lys Asp Phe Phe Lys Lys Phe Leu Tyr Glu Pro Leu Pro Val	
1761 1766 1771 1776	
gag tct cac ctg gac cac tgt atg cat gac cac ttc aat gct gag att	5376
Glu Ser His Leu Asp His Cys Met His Asp His Phe Asn Ala Glu Ile	
1777 1782 1787 1792	
gtc acc aag acc att gag aac aag cag gat gct gtg gac tac ctc acc	5424
Val Thr Lys Thr Ile Glu Asn Lys Gln Asp Ala Val Asp Tyr Leu Thr	
1793 1798 1803 1808	
tgg acc ttt ctg tat cgc aga atg aca cag aac ccc aat tac tac aac	5472
Trp Thr Phe Leu Tyr Arg Arg Met Thr Gln Asn Pro Asn Tyr Tyr Asn	
1809 1814 1819 1824	
ctg cag ggg ata tcc cat cgt cat ctg tct gac cac ctg tca gag ctg	5520
Leu Gln Gly Ile Ser His Arg His Leu Ser Asp His Leu Ser Glu Leu	
1825 1830 1835 1840	
gtg gag cag acc ctc agt gac ctg gag cag tcc aaa tgc atc agt att	5568
Val Glu Gln Thr Leu Ser Asp Leu Glu Gln Ser Lys Cys Ile Ser Ile	
1841 1846 1851 1856	

gag gac gag atg gat gtg gcc cct ctg aac ctg ggc atg att gct gcc	5616
Glu Asp Glu Met Asp Val Ala Pro Leu Asn Leu Gly Met Ile Ala Ala	
1857 1862 1867 1872	
tac tat tac ata aac tac acc acc att gag ctg ttc agc atg tct ctg	5664
Tyr Tyr Tyr Ile Asn Tyr Thr Thr Ile Glu Leu Phe Ser Met Ser Leu	
1873 1878 1883 1888	
aat gct aaa acc aag gtt cga gga ctt att gag atc att tcc aat gca	5712
Asn Ala Lys Thr Lys Val Arg Gly Leu Ile Glu Ile Ile Ser Asn Ala	
1889 1894 1899 1904	
gca gag tat gag aac att cca atc agg cat cat gaa gac aac ctg ctg	5760
Ala Glu Tyr Glu Asn Ile Pro Ile Arg His His Glu Asp Asn Leu Leu	
1905 1910 1915 1920	
cgc cag ttg gct cag aag gtc ccc cac aag ctg aat aac ccc aag ttc	5808
Arg Gln Leu Ala Gln Lys Val Pro His Lys Leu Asn Asn Pro Lys Phe	
1921 1926 1931 1936	
aat gat cca cat gtg aag acc aat ctg ctg ctg cag gct cac ctg tcc	5856
Asn Asp Pro His Val Lys Thr Asn Leu Leu Leu Gln Ala His Leu Ser	
1937 1942 1947 1952	
cgc atg cag cta agt gct gaa cta cag tca gac aca gag gag atc ctt	5904
Arg Met Gln Leu Ser Ala Glu Leu Gln Ser Asp Thr Glu Glu Ile Leu	
1953 1958 1963 1968	
agt aag gca atc cgg cta att cag gcc tgt gtg gat gta ctg tcc agt	5952
Ser Lys Ala Ile Arg Leu Ile Gln Ala Cys Val Asp Val Leu Ser Ser	
1969 1974 1979 1984	
aat ggg tgg ctt agt cct gct ctg gca gcc atg gaa ctg gcc cag atg	6000
Asn Gly Trp Leu Ser Pro Ala Leu Ala Ala Met Glu Leu Ala Gln Met	
1985 1990 1995 2000	
gtc acc caa gcc atg tgg tct gag gac tct tac ctg agg cgg ttg ccc	6048
Val Thr Gln Ala Met Trp Ser Glu Asp Ser Tyr Leu Arg Arg Leu Pro	
2001 2006 2011 2016	
cct ttc cct tcg ggg ctt ttc aaa cgt tgc aca gat aag gga gtg gag	6096
Pro Phe Pro Ser Gly Leu Phe Lys Arg Cys Thr Asp Lys Gly Val Glu	
2017 2022 2027 2032	
agt gtt ttt gac atc atg gag atg gag gat gaa gaa cgg aat gca ttg	6144
Ser Val Phe Asp Ile Met Glu Met Glu Asp Glu Glu Arg Asn Ala Leu	
2033 2038 2043 2048	
ctt cag ttg act gac agc cag att gca gat gtg gcc cgc ttc tgt aac	6192
Leu Gln Leu Thr Asp Ser Gln Ile Ala Asp Val Ala Arg Phe Cys Asn	
2049 2054 2059 2064	
cgc tac ccg aat att gaa ctg tcc tat gaa gtg gtg gat aaa gac agc	6240
Arg Tyr Pro Asn Ile Glu Leu Ser Tyr Glu Val Val Asp Lys Asp Ser	
2065 2070 2075 2080	
atc cgc agt ggc gga cca gtt gtg gtg cta gtg caa ctg gag cga gag	6288

Ile	Arg	Ser	Gly	Gly	Pro	Val	Val	Val	Leu	Val	Gln	Leu	Glu	Arg	Glu		
2081					2086					2091					2096		
gag	gaa	gtc	acg	ggc	cca	gtt	att	gca	cct	ctc	ttc	cca	cag	aaa	cgt	6336	
Glu	Glu	Val	Thr	Gly	Pro	Val	Ile	Ala	Pro	Leu	Phe	Pro	Gln	Lys	Arg		
2097					2102					2107					2112		
gaa	gag	ggc	tgg	tgg	gtt	gtg	att	gga	gac	gcc	aag	tcc	aac	agc	ctc	6384	
Glu	Glu	Gly	Trp	Trp	Val	Val	Ile	Gly	Asp	Ala	Lys	Ser	Asn	Ser	Leu		
2113					2118					2123					2128		
atc	tcc	atc	aag	agg	ctg	acc	ctg	cag	cag	aaa	gcc	aag	gtg	aag	cta	6432	
Ile	Ser	Ile	Lys	Arg	Leu	Thr	Leu	Gln	Gln	Lys	Ala	Lys	Val	Lys	Leu		
2129					2134					2139					2144		
gac	ttt	gtg	gcc	cca	gcc	aca	ggt	ggc	cgc	cac	aat	acc	ctg	tac	ttc	6480	
Asp	Phe	Val	Ala	Pro	Ala	Thr	Gly	Gly	Arg	His	Asn	Thr	Leu	Tyr	Phe		
2145					2150					2155					2160		
atg	agt	gac	gca	tac	atg	gga	tgt	gac	cag	gag	tat	aag	ttc	agt	gtg	6528	
Met	Ser	Asp	Ala	Tyr	Met	Gly	Cys	Asp	Gln	Glu	Tyr	Lys	Phe	Ser	Val		
2161					2166					2171					2176		
gat	gtg	aaa	gaa	gct	gag	aca	gac	agt	gat	tca	gat	tga				6567	
Asp	Val	Lys	Glu	Ala	Glu	Thr	Asp	Ser	Asp	Ser	Asp	*					
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Met	Ala	Asp	Val	Thr	Ala	Arg	Ser	Leu	Gln	Tyr	Glu	Tyr	Lys	Ala	Asn	
1					5										10	
tcg	aat	ctt	gtg	ctc	caa	gct	gac	cgt	tct	ctc	att	gac	cgg	acc	cgc	96
Ser	Asn	Leu	Val	Leu	Gln	Ala	Asp	Arg	Ser	Leu	Ile	Asp	Arg	Thr	Arg	
17					22					27					32	
cgg	gat	gaa	ccc	aca	gga	gag	gtg	ctg	tcc	ctt	gtt	ggg	aag	ctg	gag	144
Arg	Asp	Glu	Pro	Thr	Gly	Glu	Val	Leu	Ser	Leu	Val	Gly	Lys	Leu	Glu	
33					38					43					48	
ggc	acc	cgt	atg	gga	gac	aag	gct	caa	cgg	acc	aaa	ccg	cag	atg	cag	192
Gly	Thr	Arg	Met	Gly	Asp	Lys	Ala	Gln	Arg	Thr	Lys	Pro	Gln	Met	Gln	
49					54					59					64	

gag gaa aga aga gcc aag cga aga aag cgt gat gag gac cgg cat gac	240
Glu Glu Arg Arg Ala Lys Arg Arg Lys Arg Asp Glu Asp Arg His Asp	
65 70 75 80	
atc aac aag atg aag ggt tat act ctg ctg tcg gag ggc att gat gag	288
Ile Asn Lys Met Lys Gly Tyr Thr Leu Leu Ser Glu Gly Ile Asp Glu	
81 86 91 96	
atg gtg ggc atc atc tac aag ccc aaa act aaa gag act cgg gag acc	336
Met Val Gly Ile Ile Tyr Lys Pro Lys Thr Lys Glu Thr Arg Glu Thr	
97 102 107 112	
tat gag gtg cta ctc agc ttc atc cag gct gct ctt ggg gac cag cca	384
Tyr Glu Val Leu Leu Ser Phe Ile Gln Ala Ala Leu Gly Asp Gln Pro	
113 118 123 128	
cgt gat atc ctt tgt ggg gca gct gat gaa gtt cta gct gtt cta aag	432
Arg Asp Ile Leu Cys Gly Ala Ala Asp Glu Val Leu Ala Val Leu Lys	
129 134 139 144	
aat gaa aag ctg cgg gac aag gaa agg cga aag gag att gac ctg ctg	480
Asn Glu Lys Leu Arg Asp Lys Glu Arg Arg Lys Glu Ile Asp Leu Leu	
145 150 155 160	
ctg ggt caa aca gat gat acc aga tac cat gtg cta gtg aac ctg ggc	528
Leu Gly Gln Thr Asp Asp Thr Arg Tyr His Val Leu Val Asn Leu Gly	
161 166 171 176	
aaa aag atc aca gac tat ggt gga gat aag gaa atc caa aat atg gat	576
Lys Lys Ile Thr Asp Tyr Gly Gly Asp Lys Glu Ile Gln Asn Met Asp	
177 182 187 192	
gac aac att gat gag aca tac ggt gtg aat gtg cag ttt gag tct gat	624
Asp Asn Ile Asp Glu Thr Tyr Gly Val Asn Val Gln Phe Glu Ser Asp	
193 198 203 208	
gag gag gaa ggt gat gaa gac gta tac ggg gag gtt cga gaa gag gca	672
Glu Glu Glu Gly Asp Glu Asp Val Tyr Gly Glu Val Arg Glu Glu Ala	
209 214 219 224	
tct gat gat gac atg gaa ggg gac gag gct gtc gtg cgc tgc acc ctc	720
Ser Asp Asp Asp Met Glu Gly Asp Glu Ala Val Val Arg Cys Thr Leu	
225 230 235 240	
tcg gct aat atg tat gtt gat gaa atc tta gtc tgg tgt gct tct gaa	768
Ser Ala Asn Met Tyr Val Asp Glu Ile Leu Val Trp Cys Ala Ser Glu	
241 246 251 256	
ctc aat att cca gag ttt ttt cct ctg gaa agt cct cac aag aag gtg	816
Leu Asn Ile Pro Glu Phe Phe Pro Leu Glu Ser Pro His Lys Lys Val	
257 262 267 272	
ggc tat gga ttg tca agt aga act tgg ttg cag ggt ggt ggc aaa gtg	864
Gly Tyr Gly Leu Ser Ser Arg Thr Trp Leu Gln Gly Gly Gly Lys Val	
273 278 283 288	
atc gag gct ggc aga gac ctg ctc gta gcc tca ggt gaa ctg atg agt	912

The following sequence is a partial sequence of the DNA fragment. The sequence is shown in the 5' to 3' direction. The sequence is shown in the 5' to 3' direction.

Ile Glu Ala Gly Arg Asp Leu Leu Val Ala Ser Gly Glu Leu Met Ser	
289 294 299 304	
tcc aag aag aag gat ttg cac cct cgg gat att gat gca ttt tgg ctg	960
Ser Lys Lys Lys Asp Leu His Pro Arg Asp Ile Asp Ala Phe Trp Leu	
305 310 315 320	
cag cgg cag ctc agt cgt ttc tat gat gat gcc atc gtg tcg cag aag	1008
Gln Arg Gln Leu Ser Arg Phe Tyr Asp Asp Ala Ile Val Ser Gln Lys	
321 326 331 336	
aag gca gat gaa gta ttg gag att ttg aag acg gcc agt gat gat cgg	1056
Lys Ala Asp Glu Val Leu Glu Ile Leu Lys Thr Ala Ser Asp Asp Arg	
337 342 347 352	
gaa tgt gaa aat cag ctg gtt ctg ctg ctt ggt ttc aac acc ttt gat	1104
Glu Cys Glu Asn Gln Leu Val Leu Leu Leu Gly Phe Asn Thr Phe Asp	
353 358 363 368	
ttc att aaa gtg ttg cgg cag cac agg atg atg att tta tac tgt acc	1152
Phe Ile Lys Val Leu Arg Gln His Arg Met Met Ile Leu Tyr Cys Thr	
369 374 379 384	
ttg ctg gcc agt gca caa agt gaa gct gaa aag gaa agg att atg gga	1200
Leu Leu Ala Ser Ala Gln Ser Glu Ala Glu Lys Glu Arg Ile Met Gly	
385 390 395 400	
aag atg gaa gct gac cca gag cta tcc aag ttc ctc tac cag ctt cat	1248
Lys Met Glu Ala Asp Pro Glu Leu Ser Lys Phe Leu Tyr Gln Leu His	
401 406 411 416	
gaa acc gag aag gag gat ctg atc cga gag gaa agg tcc cgg aga gag	1296
Glu Thr Glu Lys Glu Asp Leu Ile Arg Glu Glu Arg Ser Arg Arg Glu	
417 422 427 432	
cga gtg cgt cag tct cga atg gac aca gat ctg gaa acc atg gat ctc	1344
Arg Val Arg Gln Ser Arg Met Asp Thr Asp Leu Glu Thr Met Asp Leu	
433 438 443 448	
gac cag ggt gga gag gca ctg gct cca cgg cag gtt ctg gac ttg gag	1392
Asp Gln Gly Gly Glu Ala Leu Ala Pro Arg Gln Val Leu Asp Leu Glu	
449 454 459 464	
gac ctg gtt ttt acc caa ggg agc cac ttt atg gcc aat aaa cgc tgt	1440
Asp Leu Val Phe Thr Gln Gly Ser His Phe Met Ala Asn Lys Arg Cys	
465 470 475 480	
cag ctt cct gat gga tcc ttc cgt cgc cag cgt aag ggc tat gaa gag	1488
Gln Leu Pro Asp Gly Ser Phe Arg Arg Gln Arg Lys Gly Tyr Glu Glu	
481 486 491 496	
gtg cat gtg cct gct ctg aag ccc aag ccc ttt ggc tca gaa gaa caa	1536
Val His Val Pro Ala Leu Lys Pro Lys Pro Phe Gly Ser Glu Glu Gln	
497 502 507 512	
ctg ctt cca gtg gaa aag ctg cca aag tat gcc cag gct ggg ttt gag	1584
Leu Leu Pro Val Glu Lys Leu Pro Lys Tyr Ala Gln Ala Gly Phe Glu	

513	518	523	528	
ggc ttc aaa aca ctg aat cgg atc cag agt aag ctc tac cgt gct gcc				1632
Gly Phe Lys Thr Leu Asn Arg Ile Gln Ser Lys Leu Tyr Arg Ala Ala				
529	534	539	544	
ctt gag acg gat gag aat ctg ctg ctg tgt gct cct act ggt gct ggg				1680
Leu Glu Thr Asp Glu Asn Leu Leu Leu Cys Ala Pro Thr Gly Ala Gly				
545	550	555	560	
aag acc aac gtg gcc ctg atg tgc atg ctc cga gag att ggg aaa cac				1728
Lys Thr Asn Val Ala Leu Met Cys Met Leu Arg Glu Ile Gly Lys His				
561	566	571	576	
ata aac atg gac ggc acc atc aat gtg gat gac ttc aag att atc tac				1776
Ile Asn Met Asp Gly Thr Ile Asn Val Asp Asp Phe Lys Ile Ile Tyr				
577	582	587	592	
att gcc ccc atg cgc tcc ttg gtg cag gag atg gtg ggc agc ttt gga				1824
Ile Ala Pro Met Arg Ser Leu Val Gln Glu Met Val Gly Ser Phe Gly				
593	598	603	608	
aag cgc ctg gcc act tat ggc atc act gtt gct gaa ctg act ggg gac				1872
Lys Arg Leu Ala Thr Tyr Gly Ile Thr Val Ala Glu Leu Thr Gly Asp				
609	614	619	624	
cac cag ctg tgc aaa gaa gag atc agt gcc act cag atc atc gtc tgc				1920
His Gln Leu Cys Lys Glu Glu Ile Ser Ala Thr Gln Ile Ile Val Cys				
625	630	635	640	
acc ccc gag aag tgg gac atc atc acc cgc aag gtg gat gag att cat				1968
Thr Pro Glu Lys Trp Asp Ile Ile Thr Arg Lys Val Asp Glu Ile His				
641	646	651	656	
ctt ctc cac gat gac aga ggt cct gtc tta gaa gct tta gtg gcc agg				2016
Leu Leu His Asp Asp Arg Gly Pro Val Leu Glu Ala Leu Val Ala Arg				
657	662	667	672	
gcc atc cga aac att gag atg acc caa gag gat gtc cga ctc att ggt				2064
Ala Ile Arg Asn Ile Glu Met Thr Gln Glu Asp Val Arg Leu Ile Gly				
673	678	683	688	
ctc agt gcc acc cta ccc aac tat gaa gat gta gcc acc ttt cta cgt				2112
Leu Ser Ala Thr Leu Pro Asn Tyr Glu Asp Val Ala Thr Phe Leu Arg				
689	694	699	704	
gtt gac cct gcc aag ggt ctc ttt tac ttt gac aac agc ttc cgt cca				2160
Val Asp Pro Ala Lys Gly Leu Phe Tyr Phe Asp Asn Ser Phe Arg Pro				
705	710	715	720	
gtg cct ctg gaa cag aca tat gtg ggt atc aca gag aaa aaa gct atc				2208
Val Pro Leu Glu Gln Thr Tyr Val Gly Ile Thr Glu Lys Lys Ala Ile				
721	726	731	736	
aag cgt ttc cag atc atg aat gaa atc gtc tat gaa aaa atc atg gaa				2256
Lys Arg Phe Gln Ile Met Asn Glu Ile Val Tyr Glu Lys Ile Met Glu				
737	742	747	752	

cat gct gga aaa aat cag gtg ctg gtg ttt gtc cac tcc cgg aag gag	2304
His Ala Gly Lys Asn Gln Val Leu Val Phe Val His Ser Arg Lys Glu	
753 758 763 768	
act gga aag aca gcc agg gcc atc cgg gac atg tgc cta gaa aag gac	2352
Thr Gly Lys Thr Ala Arg Ala Ile Arg Asp Met Cys Leu Glu Lys Asp	
769 774 779 784	
act ctg ggt ctg ttt ctg agg gag ggc tca gcc tcc aca gaa gtc ctg	2400
Thr Leu Gly Leu Phe Leu Arg Glu Gly Ser Ala Ser Thr Glu Val Leu	
785 790 795 800	
cga aca gaa gct gag cag tgc aag aac cta gag ctg aag gat ctt ctg	2448
Arg Thr Glu Ala Glu Gln Cys Lys Asn Leu Glu Leu Lys Asp Leu Leu	
801 806 811 816	
cct tat ggc ttt gct att cat cac gca ggc atg acc agg gtt gac cga	2496
Pro Tyr Gly Phe Ala Ile His His Ala Gly Met Thr Arg Val Asp Arg	
817 822 827 832	
aca ctc gtg gag gat ctt ttt gct gat aaa cat att cag gtt tta gtt	2544
Thr Leu Val Glu Asp Leu Phe Ala Asp Lys His Ile Gln Val Leu Val	
833 838 843 848	
tcc aca gca act cta gct tgg ggt gtg aat ctc cct gca cat aca gtc	2592
Ser Thr Ala Thr Leu Ala Trp Gly Val Asn Leu Pro Ala His Thr Val	
849 854 859 864	
atc atc aaa ggc acc cag gtg tac agt cca gag aag ggg cgt tgg aca	2640
Ile Ile Lys Gly Thr Gln Val Tyr Ser Pro Glu Lys Gly Arg Trp Thr	
865 870 875 880	
gaa ctg gga gca ctg gac att ctg cag atg ctg gga cgt gcc gga aga	2688
Glu Leu Gly Ala Leu Asp Ile Leu Gln Met Leu Gly Arg Ala Gly Arg	
881 886 891 896	
ccc cag tat gac acc aag ggt gaa ggc ata ctc atc aca tct cat ggg	2736
Pro Gln Tyr Asp Thr Lys Gly Glu Gly Ile Leu Ile Thr Ser His Gly	
897 902 907 912	
gag cta cag tac tac ctg tcc ctc ctc aat caa caa ctt cct att gaa	2784
Glu Leu Gln Tyr Tyr Leu Ser Leu Leu Asn Gln Gln Leu Pro Ile Glu	
913 918 923 928	
agc cag atg gtt tca aag ctt cct gac atg ctc aat gca gaa atc gtg	2832
Ser Gln Met Val Ser Lys Leu Pro Asp Met Leu Asn Ala Glu Ile Val	
929 934 939 944	
cta gga aat gtc cag aat gcc aag gat gcg gtg aac tgg ctg ggc tat	2880
Leu Gly Asn Val Gln Asn Ala Lys Asp Ala Val Asn Trp Leu Gly Tyr	
945 950 955 960	
gcc tac ctc tat atc cga atg ctg cga tcc cca acc ctc tat ggc atc	2928
Ala Tyr Leu Tyr Ile Arg Met Leu Arg Ser Pro Thr Leu Tyr Gly Ile	
961 966 971 976	

tct cat gat gac ctc aag gga gat ccc ctg ctg gac cag cgc cga cta	2976
Ser His Asp Asp Leu Lys Gly Asp Pro Leu Leu Asp Gln Arg Arg Leu	
977 982 987 992	
gat ctg gtt cat aca gct gcc ctg atg ctg gac aag aac aat ctg gtc	3024
Asp Leu Val His Thr Ala Ala Leu Met Leu Asp Lys Asn Asn Leu Val	
993 998 1003 1008	
aag tac gac aag aag acg ggc aac ttc cag gtg aca gaa ctg ggc cgt	3072
Lys Tyr Asp Lys Lys Thr Gly Asn Phe Gln Val Thr Glu Leu Gly Arg	
1009 1014 1019 1024	
ata gcc agc cac tac tac atc acc aat gat aca gtg cag act tac aac	3120
Ile Ala Ser His Tyr Tyr Ile Thr Asn Asp Thr Val Gln Thr Tyr Asn	
1025 1030 1035 1040	
cag ctg ctg aag ccc acc ctg agt gag att gag ctt ttc agg gtc ttc	3168
Gln Leu Leu Lys Pro Thr Leu Ser Glu Ile Glu Leu Phe Arg Val Phe	
1041 1046 1051 1056	
tca ttg tcc tct gag ttc aag aac atc aca gtg aga gag gag gag aag	3216
Ser Leu Ser Ser Glu Phe Lys Asn Ile Thr Val Arg Glu Glu Glu Lys	
1057 1062 1067 1072	
ctg gag ctg cag aag ttg ctg gag agg gtg cct atc cct gta aag gag	3264
Leu Glu Leu Gln Lys Leu Leu Glu Arg Val Pro Ile Pro Val Lys Glu	
1073 1078 1083 1088	
agc att gag gaa ccc agt gct aag atc aac gtt ctt ctg caa gcc ttc	3312
Ser Ile Glu Glu Pro Ser Ala Lys Ile Asn Val Leu Leu Gln Ala Phe	
1089 1094 1099 1104	
atc tca cag ctg aaa ttg gag ggc ttt gca ctg atg gct gac atg gtg	3360
Ile Ser Gln Leu Lys Leu Glu Gly Phe Ala Leu Met Ala Asp Met Val	
1105 1110 1115 1120	
tat gtc aca cag tgc gct ggc cgg ttg atg cga gcg ata ttt gaa att	3408
Tyr Val Thr Gln Ser Ala Gly Arg Leu Met Arg Ala Ile Phe Glu Ile	
1121 1126 1131 1136	
gtc ctg aac cga ggt tgg gca cag ctt aca gac aag acc ctg aac ctc	3456
Val Leu Asn Arg Gly Trp Ala Gln Leu Thr Asp Lys Thr Leu Asn Leu	
1137 1142 1147 1152	
tgc aag atg atc gac aaa cgc atg tgg cag tcc atg tgt cct ctg cgc	3504
Cys Lys Met Ile Asp Lys Arg Met Trp Gln Ser Met Cys Pro Leu Arg	
1153 1158 1163 1168	
cag ttc cgg aaa ctc cct gag gaa gta gtg aag aag att gag aag aag	3552
Gln Phe Arg Lys Leu Pro Glu Glu Val Val Lys Lys Ile Glu Lys Lys	
1169 1174 1179 1184	
aat ttc ccc ttt gag cgt ctg tac gac ctg aat cat aat gag att ggg	3600
Asn Phe Pro Phe Glu Arg Leu Tyr Asp Leu Asn His Asn Glu Ile Gly	
1185 1190 1195 1200	
gag ctt atc cgc atg cca aag atg ggg aag acc atc cac aaa tat gtc	3648

Glu	Leu	Ile	Arg	Met	Pro	Lys	Met	Gly	Lys	Thr	Ile	His	Lys	Tyr	Val	
1201					1206					1211					1216	
cat	ctg	ttt	ccc	aag	ttg	gag	ttg	tca	gtg	cac	ctg	cag	cct	atc	aca	3696
His	Leu	Phe	Pro	Lys	Leu	Glu	Leu	Ser	Val	His	Leu	Gln	Pro	Ile	Thr	
1217					1222					1227					1232	
cgc	tcc	acc	ctg	aag	gtg	gag	ctg	acc	atc	acg	cca	gac	ttc	cag	tgg	3744
Arg	Ser	Thr	Leu	Lys	Val	Glu	Leu	Thr	Ile	Thr	Pro	Asp	Phe	Gln	Trp	
1233					1238					1243					1248	
gat	gaa	aag	gtg	cat	ggt	tca	tcc	gag	gct	ttt	tgg	att	ctg	gtg	gag	3792
Asp	Glu	Lys	Val	His	Gly	Ser	Ser	Glu	Ala	Phe	Trp	Ile	Leu	Val	Glu	
1249					1254					1259					1264	
gat	gtg	gac	agc	gag	gtg	att	ctg	cac	cat	gag	tat	ttt	ctc	ctc	aag	3840
Asp	Val	Asp	Ser	Glu	Val	Ile	Leu	His	His	Glu	Tyr	Phe	Leu	Leu	Lys	
1265					1270					1275					1280	
gcc	aag	tac	gcc	cag	gac	gag	cac	ctc	att	aca	ttc	ttc	gtg	cct	gtc	3888
Ala	Lys	Tyr	Ala	Gln	Asp	Glu	His	Leu	Ile	Thr	Phe	Phe	Val	Pro	Val	
1281					1286					1291					1296	
ttt	gaa	ccg	ctg	ccc	cct	cag	tac	ttc	atc	cga	gtg	gtg	tct	gac	cgc	3936
Phe	Glu	Pro	Leu	Pro	Pro	Gln	Tyr	Phe	Ile	Arg	Val	Val	Ser	Asp	Arg	
1297					1302					1307					1312	
tgg	ctc	tct	tgt	gag	acc	cag	ctg	cct	gtc	tcc	ttc	cgg	cac	ctg	atc	3984
Trp	Leu	Ser	Cys	Glu	Thr	Gln	Leu	Pro	Val	Ser	Phe	Arg	His	Leu	Ile	
1313					1318					1323					1328	
ttg	ccg	gag	aag	tac	ccc	cct	cca	acc	gaa	ctt	ttg	gac	ctg	cag	ccc	4032
Leu	Pro	Glu	Lys	Tyr	Pro	Pro	Pro	Thr	Glu	Leu	Leu	Asp	Leu	Gln	Pro	
1329					1334					1339					1344	
ttg	ccc	gtg	tct	gct	ctg	aga	aac	agt	gcc	ttt	gag	agt	ctt	tac	caa	4080
Leu	Pro	Val	Ser	Ala	Leu	Arg	Asn	Ser	Ala	Phe	Glu	Ser	Leu	Tyr	Gln	
1345					1350					1355					1360	
gat	aaa	ttt	cct	ttc	ttc	aat	ccc	atc	cag	acc	cag	gtg	ttt	aac	act	4128
Asp	Lys	Phe	Pro	Phe	Phe	Asn	Pro	Ile	Gln	Thr	Gln	Val	Phe	Asn	Thr	
1361					1366					1371					1376	
gta	tac	aac	agt	gac	gac	aac	gtg	ttt	gtg	ggg	gcc	ccc	acg	ggc	agc	4176
Val	Tyr	Asn	Ser	Asp	Asp	Asn	Val	Phe	Val	Gly	Ala	Pro	Thr	Gly	Ser	
1377					1382					1387					1392	
ggg	aag	act	att	tgt	gca	gag	ttt	gcc	atc	ctg	cga	atg	ctg	ctg	cag	4224
Gly	Lys	Thr	Ile	Cys	Ala	Glu	Phe	Ala	Ile	Leu	Arg	Met	Leu	Leu	Gln	
1393					1398					1403					1408	
agc	tcg	gag	ggg	cgc	tgt	gtg	tac	atc	acc	ccc	atg	gag	gcc	ctg	gca	4272
Ser	Ser	Glu	Gly	Arg	Cys	Val	Tyr	Ile	Thr	Pro	Met	Glu	Ala	Leu	Ala	
1409					1414					1419					1424	
gag	cag	gta	tac	atg	gac	tgg	tac	gag	aag	ttc	cag	gac	agg	ctc	aac	4320
Glu	Gln	Val	Tyr	Met	Asp	Trp	Tyr	Glu	Lys	Phe	Gln	Asp	Arg	Leu	Asn	

1425	1430	1435	1440	
aag aag gtg gta ctc ctg	aca ggc gag acc agc	aca gac ctg aag ctg		4368
Lys Lys Val Val Leu Leu Thr Gly Glu Thr Ser Thr Asp Leu Lys Leu				
1441	1446	1451	1456	
ctg ggc aaa ggg aac att atc atc agc acc cct gag aag tgg gac ata				4416
Leu Gly Lys Gly Asn Ile Ile Ile Ser Thr Pro Glu Lys Trp Asp Ile				
1457	1462	1467	1472	
ctt tcc cgg cga tgg aag cag cgc aag aac gtg cag aac atc aac ctc				4464
Leu Ser Arg Arg Trp Lys Gln Arg Lys Asn Val Gln Asn Ile Asn Leu				
1473	1478	1483	1488	
ttc gtg gtg gat gag gtc cac ctt atc ggg ggc gag aat ggg cct gtc				4512
Phe Val Val Asp Glu Val His Leu Ile Gly Gly Glu Asn Gly Pro Val				
1489	1494	1499	1504	
tta gaa gtg atc tgc tcc cga atg cgc tac atc tcc tcc cag att gag				4560
Leu Glu Val Ile Cys Ser Arg Met Arg Tyr Ile Ser Ser Gln Ile Glu				
1505	1510	1515	1520	
cgg ccc att cgc att gtg gca ctc agc tct tcg ctc tcc aat gcc aag				4608
Arg Pro Ile Arg Ile Val Ala Leu Ser Ser Ser Leu Ser Asn Ala Lys				
1521	1526	1531	1536	
gat gtg gcc cac tgg ctg ggc tgc agt gcc acc tcc acc ttc aac ttc				4656
Asp Val Ala His Trp Leu Gly Cys Ser Ala Thr Ser Thr Phe Asn Phe				
1537	1542	1547	1552	
cat ccc aat gtg cgt ccc gtc ccc ttg gag ctg cac atc cag ggc ttc				4704
His Pro Asn Val Arg Pro Val Pro Leu Glu Leu His Ile Gln Gly Phe				
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aac atc agc cat aca caa acc cgc ctg ctc tcc atg gcc aag cct gtg				4752
Asn Ile Ser His Thr Gln Thr Arg Leu Leu Ser Met Ala Lys Pro Val				
1569	1574	1579	1584	
tac cat gct atc acc aag cac tcg ccc aag aag cct gtc att gtc ttt				4800
Tyr His Ala Ile Thr Lys His Ser Pro Lys Lys Pro Val Ile Val Phe				
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gtg ccg tct cgc aag cag acc cgc ctc act gcc att gac atc ctc acc				4848
Val Pro Ser Arg Lys Gln Thr Arg Leu Thr Ala Ile Asp Ile Leu Thr				
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Thr Cys Ala Ala Asp Ile Gln Arg Gln Arg Phe Leu His Cys Thr Glu				
1617	1622	1627	1632	
aag gat ctg att ccg tac ctg gag aag cta agt gac agc acg ctc aag				4944
Lys Asp Leu Ile Pro Tyr Leu Glu Lys Leu Ser Asp Ser Thr Leu Lys				
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gaa acg ctg cta aat ggg gtg ggc tac ctg cat gag ggg ctc agc ccc				4992
Glu Thr Leu Leu Asn Gly Val Gly Tyr Leu His Glu Gly Leu Ser Pro				
1649	1654	1659	1664	

atg gag cga cgc ctg gtg gag cag ctc ttc agc tca ggg gct atc cag	5040
Met Glu Arg Arg Leu Val Glu Gln Leu Phe Ser Ser Gly Ala Ile Gln	
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Val Val Val Ala Ser Arg Ser Leu Cys Trp Gly Met Asn Val Ala Ala	
1681 1686 1691 1696	
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His Leu Val Ile Ile Met Asp Thr Gln Tyr Tyr Asn Gly Lys Ile His	
1697 1702 1707 1712	
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Ala Tyr Val Asp Tyr Pro Ile Tyr Asp Val Leu Gln Met Val Gly His	
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Ala Asn Arg Pro Leu Gln Asp Asp Glu Gly Arg Cys Val Ile Met Cys	
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Gln Gly Ser Lys Lys Asp Phe Phe Lys Lys Phe Leu Tyr Glu Pro Leu	
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cca gta gaa tct cac ctg gac cac tgt atg cat gac cac ttc aat gct	5328
Pro Val Glu Ser His Leu Asp His Cys Met His Asp His Phe Asn Ala	
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Glu Ile Val Thr Lys Thr Ile Glu Asn Lys Gln Asp Ala Val Asp Tyr	
1777 1782 1787 1792	
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Leu Thr Trp Thr Phe Leu Tyr Arg Arg Met Thr Gln Asn Pro Asn Tyr	
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Tyr Asn Leu Gln Gly Ile Ser His Arg His Leu Ser Asp His Leu Ser	
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gag ctg gtg gag cag acc ctg agt gac ctg gag cag tcc aag tgc atc	5520
Glu Leu Val Glu Gln Thr Leu Ser Asp Leu Glu Gln Ser Lys Cys Ile	
1825 1830 1835 1840	
agc atc gag gac gag atg gac gtg gcg cct ctg aac cta ggc atg atc	5568
Ser Ile Glu Asp Glu Met Asp Val Ala Pro Leu Asn Leu Gly Met Ile	
1841 1846 1851 1856	
gcc gcc tac tat tac atc aac tac acc acc att gag ctc ttc agc atg	5616
Ala Ala Tyr Tyr Tyr Ile Asn Tyr Thr Thr Ile Glu Leu Phe Ser Met	
1857 1862 1867 1872	
tcc ctc aat gcc aag acc aag gtg cga ggg ctt atc gag atc atc tcc	5664
Ser Leu Asn Ala Lys Thr Lys Val Arg Gly Leu Ile Glu Ile Ile Ser	
1873 1878 1883 1888	

aat gca gca gag tat gag aac att ccc atc cgg cac cat gaa gac aat	5712
Asn Ala Ala Glu Tyr Glu Asn Ile Pro Ile Arg His His Glu Asp Asn	
1889 1894 1899 1904	
ctc ctg agg cag ttg gct cag aag gtc ccc cac aag ctg aat aac cct	5760
Leu Leu Arg Gln Leu Ala Gln Lys Val Pro His Lys Leu Asn Asn Pro	
1905 1910 1915 1920	
aag ttc aat gat ccg cac gtc aag acc aac ctg ctc ctg cag gct cac	5808
Lys Phe Asn Asp Pro His Val Lys Thr Asn Leu Leu Leu Gln Ala His	
1921 1926 1931 1936	
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Leu Ser Arg Met Gln Leu Ser Ala Glu Leu Gln Ser Asp Thr Glu Glu	
1937 1942 1947 1952	
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Ile Leu Ser Lys Ala Ile Arg Leu Ile Gln Ala Cys Val Asp Val Leu	
1953 1958 1963 1968	
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Ser Ser Asn Gly Trp Leu Ser Pro Ala Leu Ala Ala Met Glu Leu Ala	
1969 1974 1979 1984	
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Gln Met Val Thr Gln Ala Met Trp Ser Lys Asp Ser Tyr Leu Lys Gln	
1985 1990 1995 2000	
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Leu Pro His Phe Thr Ser Glu His Ile Lys Arg Cys Thr Asp Lys Gly	
2001 2006 2011 2016	
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Val Glu Ser Val Phe Asp Ile Met Glu Met Glu Asp Glu Glu Arg Asn	
2017 2022 2027 2032	
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Ala Leu Leu Gln Leu Thr Asp Ser Gln Ile Ala Asp Val Ala Arg Phe	
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tgt aac cgc tac cct aat atc gaa cta tct tat gag gtg gta gat aag	6192
Cys Asn Arg Tyr Pro Asn Ile Glu Leu Ser Tyr Glu Val Val Asp Lys	
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gac agc atc cgc agt ggc ggg cca gtt gtg gtg ctg gtg cag ctg gag	6240
Asp Ser Ile Arg Ser Gly Gly Pro Val Val Val Leu Val Gln Leu Glu	
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Arg Glu Glu Glu Val Thr Gly Pro Val Ile Ala Pro Leu Phe Pro Gln	
2081 2086 2091 2096	
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Lys Arg Glu Glu Gly Trp Trp Val Val Ile Gly Asp Ala Lys Ser Asn	
2097 2102 2107 2112	
agc ctc atc tcc atc aag agg ctg acc ttg cag cag aag gcc aag gtg	6384

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Lys	Leu	Asp	Phe	Val	Ala	Pro	Ala	Thr	Gly	Ala	His	Asn	Tyr	Thr	Leu	
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tac	ttc	atg	agt	gac	gct	tac	atg	gga	tgt	gac	cag	gag	tac	aaa	ttc	6480
Tyr	Phe	Met	Ser	Asp	Ala	Tyr	Met	Gly	Cys	Asp	Gln	Glu	Tyr	Lys	Phe	
2145				2150				2155					2160			
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cgctt	cttttc	cctgc	ctgcc	ctcag	cgcag	ctac	agcacg	gagg	agaagc	cccag	cagca		300			
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Val	Arg	Thr	Arg	Ile	Lys	Ala	Phe	Leu	Ile	Trp	Ala	Tyr	Phe	Asp	Lys	
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Glu	Phe	Ser	Ile	Thr	Glu	Phe	Ser	Glu	Gly	Ala	Lys	Gln	Ala	Phe	Ala	
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cat	gta	tcc	aag	ttg	ctg	tca	cag	tgt	aaa	ttt	gat	ctg	ttg	gaa	gaa	493
His	Val	Ser	Lys	Leu	Leu	Ser	Gln	Cys	Lys	Phe	Asp	Leu	Leu	Glu	Glu	
45				50				55					60			
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Leu	Val	Ala	Lys	Glu	Val	Leu	His	Ala	Leu	Lys	Glu	Lys	Val	Thr	Ser	

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cta cct gac aac cat aaa aat gcc ctt gct gct aac ata gat gaa att				589
Leu Pro Asp Asn His Lys Asn Ala Leu Ala Ala Asn Ile Asp Glu Ile				
77	82	87	92	
gta ttt aca tca aca gga gac atc tcc att tac tat gat gag aaa gga				637
Val Phe Thr Ser Thr Gly Asp Ile Ser Ile Tyr Tyr Asp Glu Lys Gly				
93	98	103	108	
agg aag ttt gtt aac atc ctg atg tgc ttt tgg tat cta acc agt gcc				685
Arg Lys Phe Val Asn Ile Leu Met Cys Phe Trp Tyr Leu Thr Ser Ala				
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Asn Ile Pro Ser Glu Thr Leu Arg Gly Ala Ser Val Phe Gln Val Lys				
125	130	135	140	
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Leu Gly Asn Gln Asn Val Glu Thr Lys Gln Leu Leu Ser Ala Ser Tyr				
141	146	151	156	
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Glu Phe Gln Arg Glu Phe Thr Gln Gly Val Lys Pro Asp Trp Thr Ile				
157	162	167	172	
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Ala Arg Ile Glu His Ser Lys Leu Leu Glu *				
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tcttcactta atctaagtct gtgaattact tttatattat tttgaaatac tccttgcagt				1000
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Lys Lys Asp Gly Ser Gly Gly Ala Ser Gly Thr Leu Gln Pro Ser Ser	
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Gly Gly Gly Ser Ser Asn Ser Arg Glu Arg His Arg Leu Val Ser Lys	
26 31 36 41	
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His Lys Arg His Lys Ser Lys His Ser Lys Asp Met Gly Leu Val Thr	
42 47 52 57	
ccc gaa gca gca tcc ctg ggc aca gtt atc aaa cct ttg gtg gag tat	362
Pro Glu Ala Ala Ser Leu Gly Thr Val Ile Lys Pro Leu Val Glu Tyr	
58 63 68 73	
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Asp Asp Ile Ser Ser Asp Ser Asp Thr Phe Ser Asp Asp Met Ala Phe	
74 79 84 89	
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Lys Leu Asp Arg Arg Glu Asn Asp Glu Arg Arg Gly Ser Asp Arg Ser	
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Asp Arg Leu His Lys His Arg His His Gln His Arg Arg Ser Arg Asp	
106 111 116 121	
tta cta aaa gct aaa cag acc gaa aaa gaa aaa agc caa gaa gtc tcc	554
Leu Leu Lys Ala Lys Gln Thr Glu Lys Glu Lys Ser Gln Glu Val Ser	
122 127 132 137	
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Ser Lys Ser Gly Ser Met Lys Asp Arg Ile Ser Gly Ser Ser Lys Arg	
138 143 148 153	
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Ser Asn Glu Glu Thr Asp Asp Tyr Gly Lys Ala Gln Val Ala Lys Ser	
154 159 164 169	
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Ser Ser Lys Glu Ser Arg Ser Ser Lys Leu His Lys Glu Lys Thr Arg	
170 175 180 185	
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Lys Glu Arg Glu Leu Lys Ser Gly His Lys Asp Arg Ser Lys Ser His	
186 191 196 201	
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Arg Lys Arg Glu Thr Pro Lys Ser Tyr Lys Thr Val Asp Ser Pro Lys	
202 207 212 217	

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Arg Arg Ser Arg Ser	Pro His Arg Lys Trp Ser	Asp Ser Ser Lys Gln	
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Asp Asp Ser Pro Ser	Gly Ala Ser Tyr Gly	Gln Asp Tyr Asp Leu Ser	
234	239	244 249	
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Pro Ser Arg Ser His	Thr Ser Ser Asn Tyr	Asp Ser Tyr Lys Lys Ser	
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cct gga agt acc tcg	aga agg cag tcg gtc	agt ccc cct tac aag gag	986
Pro Gly Ser Thr Ser	Arg Arg Gln Ser Val	Ser Pro Pro Tyr Lys Glu	
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Pro Ser Ala Tyr Gln	Ser Ser Thr Arg Ser	Pro Ser Pro Tyr Ser Arg	
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Arg Gln Arg Ser Val	Ser Pro Tyr Ser Arg	Arg Arg Ser Ser Ser Tyr	
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Glu Arg Ser Gly Ser	Tyr Ser Gly Arg Ser	Pro Ser Pro Tyr Gly Arg	
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Pro Leu Pro Ser Arg	Lys Ser Met Lys Ser	Arg Ser Arg Ser Pro Ala	
346	351	356 361	
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Tyr Ser Arg His Ser	Ser Ser His Ser Lys	Lys Lys Arg Ser Ser Ser	
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Arg Ser Arg His Ser	Ser Ile Ser Pro Val	Arg Leu Pro Leu Asn Ser	
378	383	388 393	
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458 463 468 473	
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Asn Ser Ser Asp Thr Gly Lys Val Lys Leu Asp Glu Asn Ser Glu Lys	
474 479 484 489	
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His Leu Val Lys Asp Leu Lys Ala Gln Gly Thr Arg Asp Ser Lys Pro	
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Ile Ala Leu Lys Glu Glu Ile Val Thr Pro Lys Glu Thr Glu Thr Ser	
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Leu Pro Pro Ile Pro Ala Leu Pro Gln Gln Pro Pro Leu Pro Pro Ser	
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Gln Pro Ala Phe Ser Gln Val Pro Ala Ser Ser Thr Ser Thr Leu Pro	
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Pro Ser Thr His Ser Lys Thr Ser Ala Val Ser Ser Gln Ala Asn Ser	
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Gln Pro Pro Val Gln Val Ser Val Lys Thr Gln Val Ser Val Thr Ala	
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Pro Pro Asp Ser Pro	Glu Pro Lys Ala Ile Thr Pro Pro Gln Gln Pro	
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Tyr Lys Lys Arg Pro	Lys Ile Cys Cys Pro Arg Tyr Gly Glu Arg Arg	
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Ile Gly Ile Ile Gly	Glu Gly Thr Tyr Gly Gln Val Tyr Lys Ala Arg	
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Ser Gly Leu Val His	Phe Ser Glu Asp His Ile Lys Ser Phe Met Lys	
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Gln Leu Met Glu Gly	Leu Glu Tyr Cys His Lys Lys Asn Phe Leu His	
842	847 852 857	
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Arg Asp Ile Lys Cys	Ser Asn Ile Leu Leu Asn Asn Ser Gly Gln Ile	
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Lys Leu Ala Asp Phe	Gly Leu Ala Arg Leu Tyr Asn Ser Glu Glu Ser	
874	879 884 889	
cgc cct tac aca aac	aaa gtc att act ttg tgg tac cga cct cca gaa	2858
Arg Pro Tyr Thr Asn	Lys Val Ile Thr Leu Trp Tyr Arg Pro Pro Glu	